



# Carina Module

Revitalizing the Supply of Heavy Rare Earths

January 2024

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## Scientific and Technical Information

This presentation also contains references to estimates of Mineral Resources. The estimation of mineral resources is inherently uncertain and involves subjective judgments about many relevant factors. Mineral resources that are not mineral reserves do not have demonstrated economic viability. The accuracy of any such estimates is a function of the quantity and quality of available data, and of the assumptions made and judgments used in engineering and geological interpretation (including estimated future production from the Company's projects, the anticipated tonnages and grades that will be mined and the estimated level of recovery that will be realized), which may prove to be unreliable and depend, to a certain extent, upon the analysis of drilling results and statistical inferences that ultimately may prove to be inaccurate. Mineral resource estimates may have to be re-estimated based on: (i) fluctuations in prices of rare earth elements; (ii) results of drilling; (iii) metallurgical testing and other studies; (iv) proposed mining operations; (v) evaluation of mine plans subsequent to the date of any estimates and (vi) the possible failure to receive required permits, approvals and licenses.

Scientific and technical information (including financial forecasts and valuation calculations) relating to the Penco Module contained in this presentation has been derived from, and in some instances extracted from a technical report prepared in accordance with National Instrument "43-101 Standards" of Disclosure for Mineral Projects ("NI 43-101") entitled "Preliminary Economic Assessment – Carina Rare Earth Element Project – Nova Roma, Goiás, Brazil" with an effective date of November 3, 2023 ("Technical Report" or Aclara PEA") prepared by GE2I Consultoria Mineral and authored by Stuart J. Saich, Branca Horta de Almeida Abrantes, Porfirio Cabaleiro Rodriguez and Roaniel Hirose, each of whom and is a "qualified person" and "within the meanings of NI 43-101."

Portions of the scientific and technical information relating to the Carina Module contained in this presentation are based on assumptions, qualifications, procedures and other information which are not fully described herein but are set out in the Technical Report. Reference should be made to the full text of the Technical Report which has been filed with the Canadian securities' regulatory authorities in each of the provinces and territories of Canada (other than Québec) pursuant to NI 43-101 and is available for review on the Company's SEDAR+ profile at [www.sedarplus.ca](http://www.sedarplus.ca). The mineral resource estimates referred to in this presentation have been calculated using the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") "Standards on Mineral Resources and Reserves, Definitions and Guidelines" dated May 10, 2014 prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM.

Barry Murphy, the Chief Operating Officer of the Company, is a "qualified person" within the meaning of NI 43-101 and has reviewed and approved of the scientific and technical disclosure in this presentation. Mr. Murphy is not independent of the Company within the meaning of NI 43-101.

# Aclara at a Glance



## 1 Multi-modular Heavy Rare Earth Company

- ✓ 2 top class ionic clay deposits
- ✓ Geopolitically diversified in Chile and Brazil

## 2 Significant production potential of critical elements Dy & Tb

- ✓ Carina represents 13.7% and Penco 3.3% of Chinese official production\*

## 3 Sustainable technology already demonstrated

- ✓ Fully owned pilot plant offers a technical advantage

## 4 Solid financial position

- ✓ Raised US\$100 million on the TSX in December 2021
- ✓ US\$ 33M in cash as of December 2023, no debt
- ✓ Backed by Hochschild Group
- ✓ Market cap. of \$64m



**ACLARA AIMS TO BE THE MARKET LEADER IN SUSTAINABLE HEAVY RARE EARTHS**

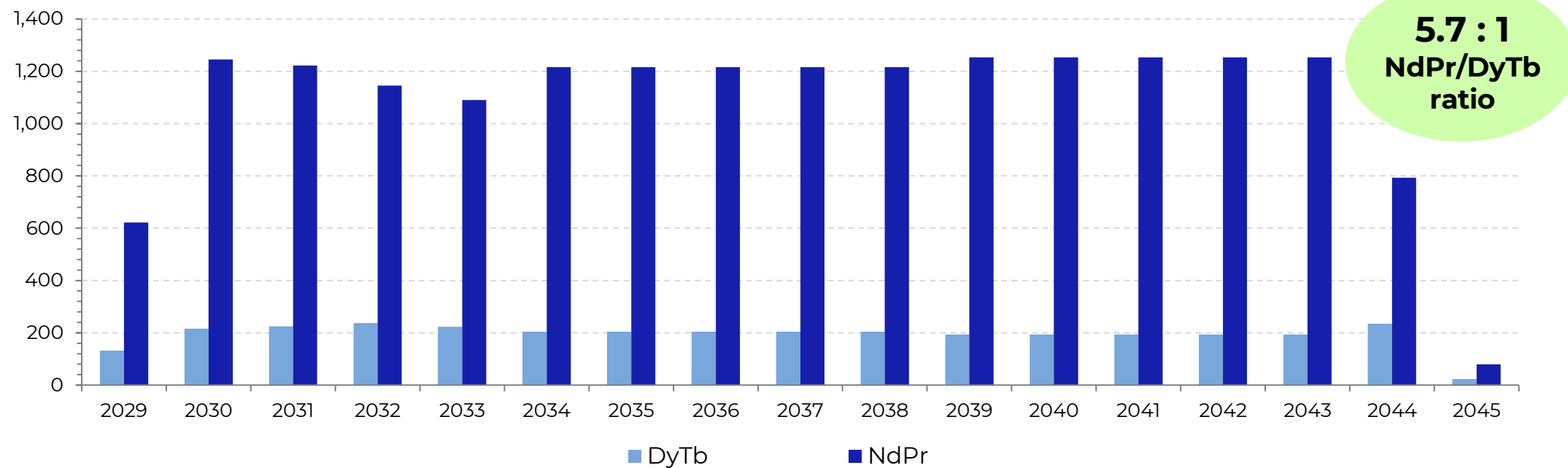
\* Source: The Chinese Ministry of Industry and Information Technology published their 2023 rare earth oxides quotas for mining production in China at 255,000 tonnes (235,857 tonnes for light REEs and 19,143 tonnes for heavy REEs). The resulting production of DyTb is approximately 1,520 tonnes.



# Carina Module PEA: Economic Details

Life of Mine	Post-tax NPV <sub>8%</sub>	Initial Capex	Avg. Cost	Avg. Annual EBITDA*
<b>17 years</b> With high potential for expansion	<b>US\$1.2B</b> <b>(29% IRR)</b> Effective tax rate of 36%	<b>US\$582M</b> Includes 30% contingency	<b>13.1 US\$/t</b> Net Smelter Return at 49.1 US\$/t	<b>US\$340M</b> ~71% annual EBITDA margin


“Life of Mine” Production of Magnetic REO (tonnes)



**ROBUST ECONOMICS UNDERPINNED BY LOW PRODUCTION COSTS**

\* Annual average does not consider the first year (ramp-up) and the last year (ramp-down)

# Estimated 2023 World DyTb Supply vs. 2023 Demand

2023 Estimated Supply (Tonnes)		DyTb
Chinese Official Production Quotas		1,519
	China – hard rock*	399
	China – Ionic Clays*	1,120
In-situ Leaching Asian Production sold to China		1,392
Myanmar / Malaysia/ Laos/ Thailand and other ionic clays**		1,207
Serra Verde***		185
China Consolidated		2,911
MP Materials		47
ROW	Lynas Rare Earths	47
	Others**	13
Rest of the World		107
2023 Estimated Demand by Argus Media		7,965
Additional Supply Required by 2023		4,947

Carina's expected Avg. Annual Production



Carina's DyTb expected production would represent 13.7% of Chinese Official Production

SIGNIFICANT DyTb SUPPLY SHORTAGE EXPECTED

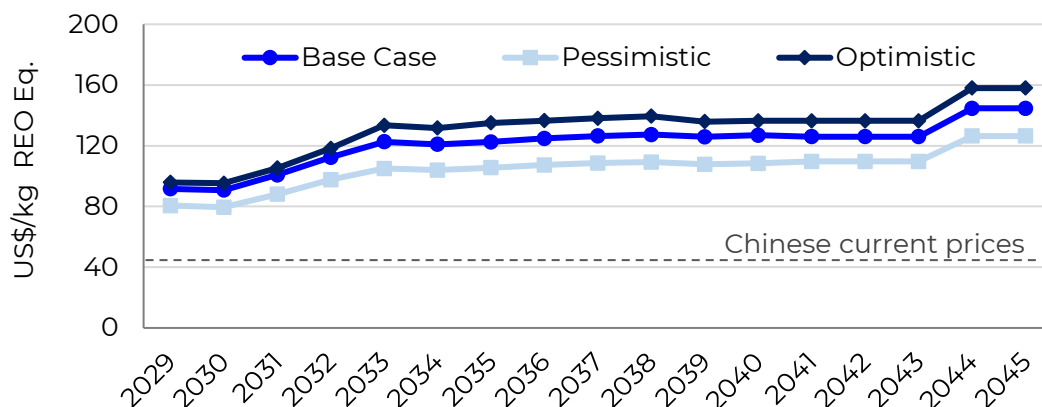
\*Source: The Chinese Ministry of Industry and Information Technology. Elements approximation based on mines grades  
 \*\* Source: Argus Media based on customs reports as of November 2023. (REO content of ionic clays carbonates of 40%). Others from USGS 2023 Rare Earths report (customs reports)  
 \*\*\* Source: Company presentation (08,2021): Serra Verde Geology, expected production slide. Press release (January 11, 2023) Serra Verde, a Denham Capital portfolio company, announces investment by Vision Blue Resources and The Energy & Minerals Group as well as appointment of new leadership team .

# Prices and Sensitivities

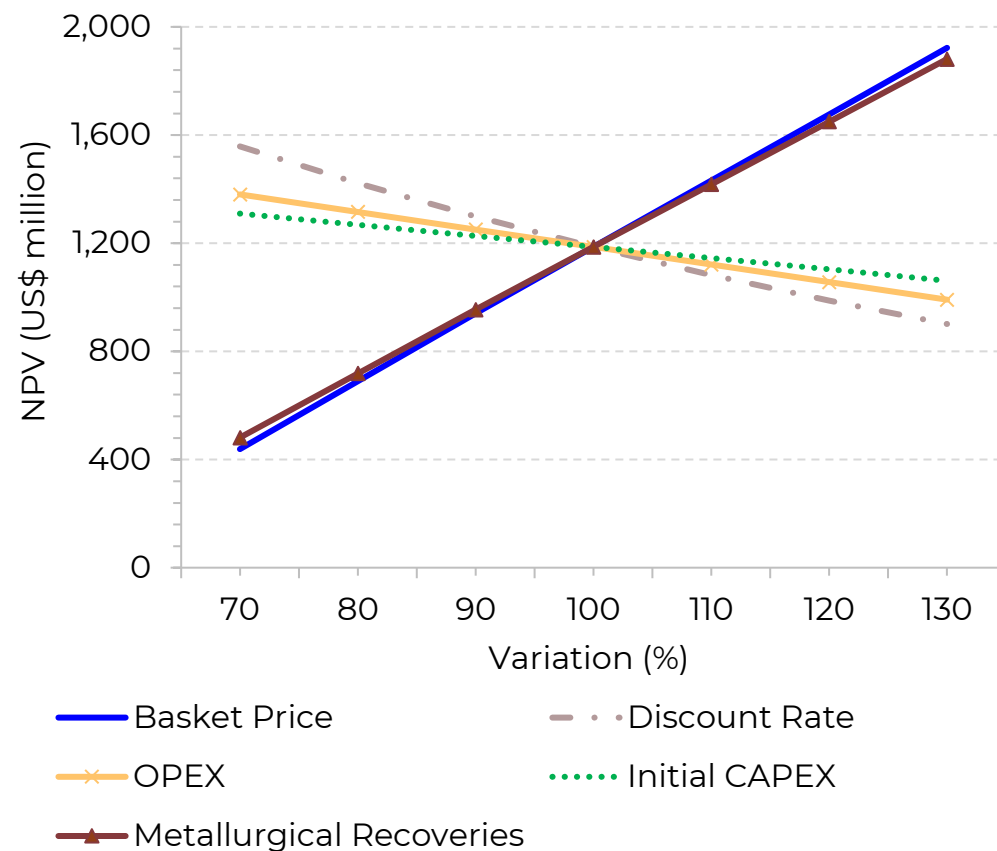
## Dysprosium Chinese Price Forecast (Argus Media)

	2025	2028	2033
Total supply (kt REO)	3.1	3.8	4.0
Total demand (kt REO)	4.3	5.3	7.0
Surplus/deficit index (2018=100)	93	84	60
<b>Price (US\$/kg) Base Case</b>	<b>415</b>	<b>510</b>	<b>945</b>

## Basket Price Scenarios Forecast\*



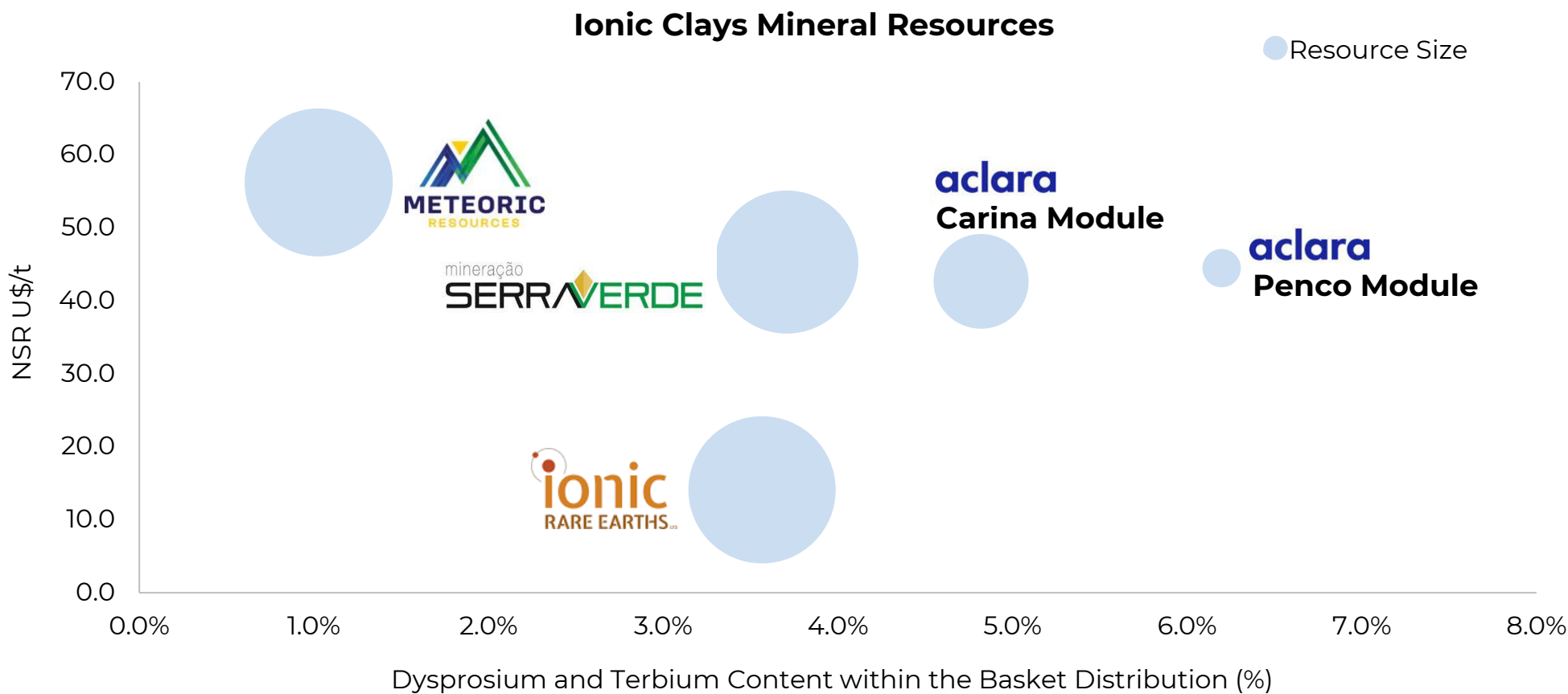
## Sensitivities



**LONG-TERM REE PRICES SUPPORTED BY COMPELLING DEMAND/SUPPLY FUNDAMENTALS**

\*Long-term REE price forecasts provided by Argus Media and Adamas

# Peer Group: Resource Comparison



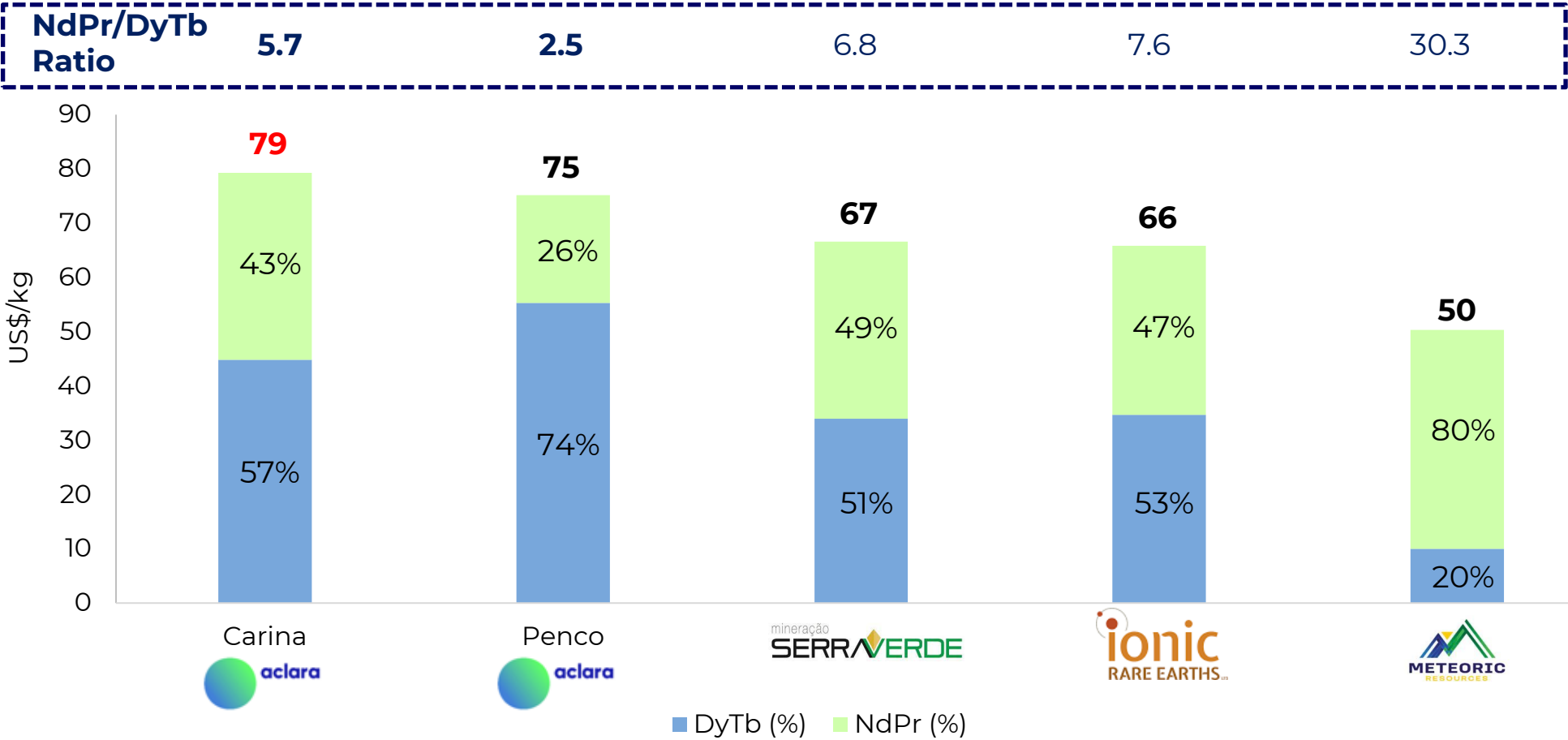
**STRONG DyTb CONTENT POSITIONS CARINA  
AS THE POTENTIAL WORLD ´S LARGEST PRODUCER OUTSIDE OF CHINA**

Notes:  
Mineral Resources Categories: Serra Verde (Measured and Indicated), Ionic Rare Earths (Measured and Indicated), Penco Module (Measured and Indicated), Carina Module (Inferred), Meteoric (Inferred)  
Prices for rare earth oxides: The price estimates in US\$/kg used for NSR calculation La<sub>2</sub>O<sub>3</sub> = 0.83, CeO<sub>2</sub> = 0.87, Pr<sub>6</sub>O<sub>11</sub> = 134.13, Nd<sub>2</sub>O<sub>3</sub> = 127.28, Sm<sub>2</sub>O<sub>3</sub> = 2.09, Eu<sub>2</sub>O<sub>3</sub> = 23.28, Gd<sub>2</sub>O<sub>3</sub> = 92.93, Tb<sub>4</sub>O<sub>7</sub> = 2,146.88, Dy<sub>2</sub>O<sub>3</sub> = 718.63, Ho<sub>2</sub>O<sub>3</sub> = 149.91, Er<sub>2</sub>O<sub>3</sub> = 67.75, Tm<sub>2</sub>O<sub>3</sub> = 0.0, Yb<sub>2</sub>O<sub>3</sub> = 14.36, Lu<sub>2</sub>O<sub>3</sub> = 948.88, Y<sub>2</sub>O<sub>3</sub> = 8.21. Discount used was US\$ 7 per kg REO.

# Peer Group: Basket Price Comparison



Basket Price (Only Magnetics – DyTb & NdPr)



CARINA ´S BALANCED DyTb & NdPr VALUE  
RESULTS IN THE HIGHEST BASKET PRICE AMONG PEERS

Prices for rare earth oxides: The price estimates in US\$/kg used for NSR calculation La<sub>2</sub>O<sub>3</sub> = 0.68, CeO<sub>2</sub> = 0.69, Pr<sub>6</sub>O<sub>11</sub> = 144.18, Nd<sub>2</sub>O<sub>3</sub> = 150.75, Sm<sub>2</sub>O<sub>3</sub> = 2.39, Eu<sub>2</sub>O<sub>3</sub> = 27.45, Gd<sub>2</sub>O<sub>3</sub> = 71.55, Tb<sub>4</sub>O<sub>7</sub> = 1,789.25, Dy<sub>2</sub>O<sub>3</sub> = 477.25, Ho<sub>2</sub>O<sub>3</sub> = 137.25, Er<sub>2</sub>O<sub>3</sub> = 59.10, Tm<sub>2</sub>O<sub>3</sub> = 0.0, Yb<sub>2</sub>O<sub>3</sub> = 19.85, Lu<sub>2</sub>O<sub>3</sub> = 834.75, Y<sub>2</sub>O<sub>3</sub> = 2.86. Discount used was US\$ 7 per kg REO.



## Low Environmental Impact



### **NO USE OF EXPLOSIVES**

Simple extraction methods requires only loading and hauling



### **LOW CARBON FOOTPRINT**

No crushing or milling results in minimal energy requirements



### **NO TAILING DAMS**

No liquid residues; washed clays dry stacked or placed back on site



### **RECYCLING**

95% of water used and 99% of reagents (common fertilizer)



### **REVEGETATION**

Closure costs include revegetation of impacted areas



**INNOVATIVE AND PATENTED PROCESSING TECHNOLOGY  
ENSURES HIGH SUSTAINABILITY STANDARDS**







# Carina Module Targetted Development Timeline



	2024		2025		2026		2027		2028		2029	2030
Milestone	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	FY	FY
<b>Technical Development</b>												
Inferred Mineral Resource Drilling	■	■										
Semi-Industrial Scale Piloting	■											
Updated Mineral Resources and PEA		■	■									
Prefeasibility Study		■	■	■	■	■	■					
M&I Mineral Resource Drilling			■	■	■							
Feasibility Study							■	■	■	■	■	
<b>Permitting</b>												
Environmental Baseline	■	■	■	■	■							
EIA Evaluation Process					■	■	■	■	■	■	■	■
<b>Construction and Operation</b>												
Construction									■	■	■	■
Ramp-up and Operation											■	■

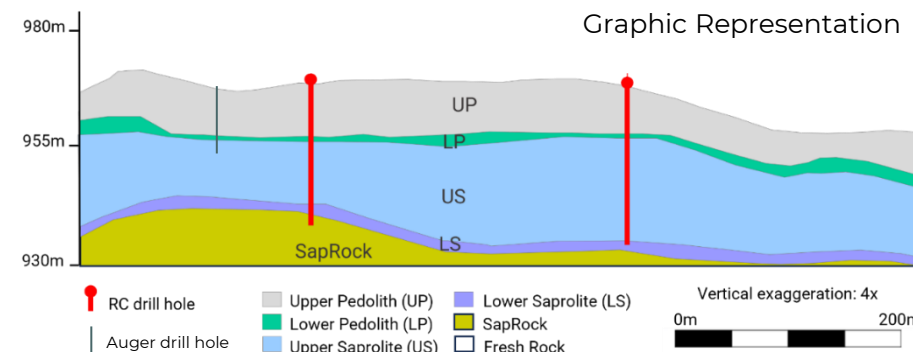
EXPEDITED PATH TO EARLY PRODUCTION

# Upside Potential



## Mineral Resource Increase potential

- Current maiden resource supported by an average drill hole depth of 8.1 meters
- 9,090-meter reverse circulation drilling campaign in progress. 1,374 meters within 52 drill holes already executed with an average depth saprolite mineralization of 22 meters



*New drill holes: RC campaign underway*

## Flow Sheet and Metallurgical Improvements

- Current recoveries based on Penco Module flowsheet configuration
- Piloting program in progress is expected to result in initiatives to improve metallurgical recoveries and to reduce capex and opex



*Aclara's pilot plant facility*

**ALREADY PURSUING SIZE AND VALUE GROWTH POTENTIAL**

# Short-term Catalysts

## Q1 2024

- **Piloting results:** processing 25 tonnes of Carina's ionic clays at Aclara's pilot plant in Chile underway

## Q2 2024

- **Potential mineral resource increase:** drilling already underway

## Q3 2024

- **Update PEA:** with potential new inferred mineral resources

## 2025

- **Complete environmental baselines studies:** already underway, to be used in the EIA study
- **Complete Prefeasibility:** bidding process in progress

**AGGRESSIVE PLAN UNDERWAY TO BE IN PRODUCTION AS EARLY AS POSSIBLE**



# Looking to Provide a Reliable Long Term Supply for a Successful Energy Transition



**POSITIONED TO SUPPLY THE EV MARKET AT A TIME  
WHEN DEMAND IS EXPECTED TO SIGNIFICANTLY OUTPACE SUPPLY**



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