

# Aclara

**Revitalizing the Supply of Heavy Rare Earths** 

March 2024



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#### Scientific and Technical Information

This presentation also contains references to estimates of Mineral Resources. The estimates is a function of the quantity and quality of available data, and of the assumptions made and judgments about many relevant factors. Mineral resources that are not mineral resources to 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 unceliable 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) metallurgical testing and other studies; (iv) proposed mining operations; (v) evaluation of mineral resources is inherently uncertain and involves subjective judgments about many relevant factors. Mineral resources that are not mineral resources that are

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. "A3-101 Standards" of Disclosure for Mineral Projects ("NI 43-101") entitled instances extracted from a technical report, prepared by GE21 Consultoria Mineral and authored by Stuart J. Saich, Branca Horta de Almeida Abrantes, Porfirio Cabaleiro Rodriguez and Rooniel Hirose, each of whom and is a "qualified person" and" within the meanings of NI 43-101.

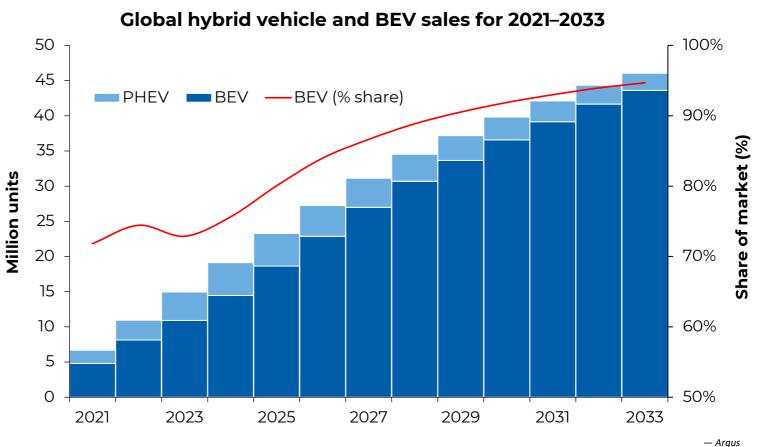
Portions of the scientific and technical information relating to the Carina Module contained in this presentation are based on assumptions, qualifications, procedures and other information which are not fully described herein but are set out in the Technical Report. Reference should be made to the full 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 <a href="https://www.sedarplus.ca">www.sedarplus.ca</a>. 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.

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.

# Rare Earths Are Not Rare. What Has Changed?







THE WORLD NEEDS A QUICK ENERGY TRANSITION TO MEET WORLD CLIMATE GOALS

# Permanent Magnets Will Drive the Rare Earths Market Growth



#### **Primary Uses**

#### **EVs**



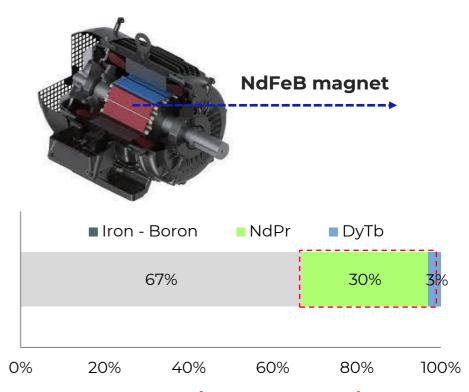
- ✓ Compact: Lower size and weight
- Strength (fast and agile): Quick acceleration resulting from the highest torque density
- ✓ Highest efficiency and lowest cost: Lower energy use reduces battery costs in up to 30% (lower lithium, cobalt & nickel content)

#### **Wind Turbines**



- More energy generated with less wind
- Increased reliability and lower maintenance cost

#### **Rare Earth Permanent Magnet Motor for EVs**



EV PM Require a proportion of NdPr / DyTb of 10:1

THE ELECTRIC REVOLUTION REQUIRES EFFICIENCY IN ORDER TO REDUCE ENERGY CONSUMPTION

### What is the Ratio in Nature?



### **Hard Rock / Mineral Sands Operations & Projects**



### **Ionic Clay Projects**



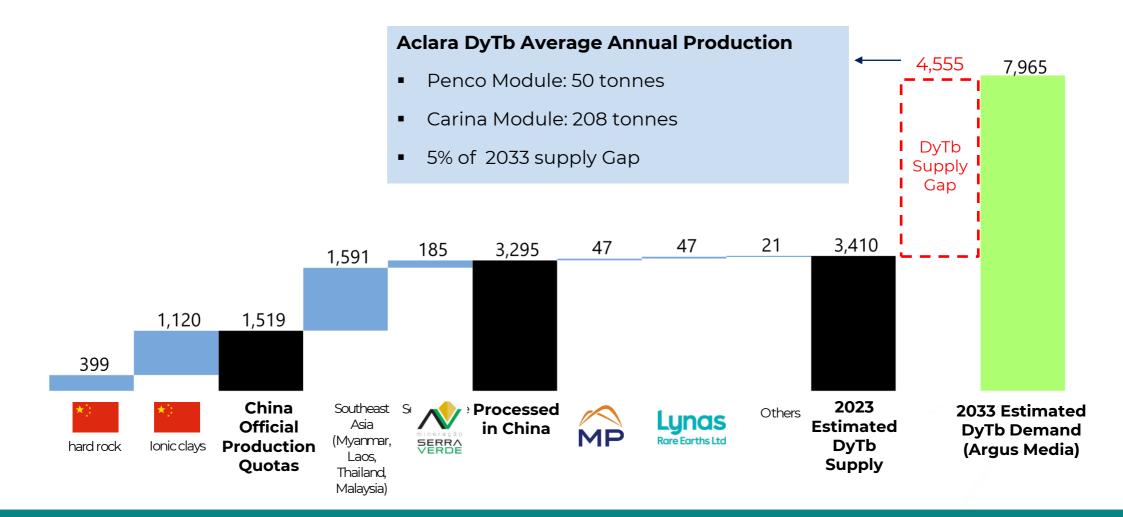
Primary REOs:	Nd Pr
NdPr / DyTb Ratio	[100-200]:1
% of Projects in the World	≈ <b>95</b> %

Primary REOs:	Dy Tb
NdPr / DyTb Ratio	[2.5-7]:1
% of Projects in the World	≈ <b>5</b> %

LIMITED DyTb SUPPLY OUTSIDE OF CHINA POSITIONS ACLARA AS THE SUPPLIER OF CHOICE FOR THE ENERGY TRANSITION

# Estimated 2023 World DyTb Supply vs. 2033 Demand





### SIGNIFICANT DyTb SUPPLY SHORTAGE EXPECTED

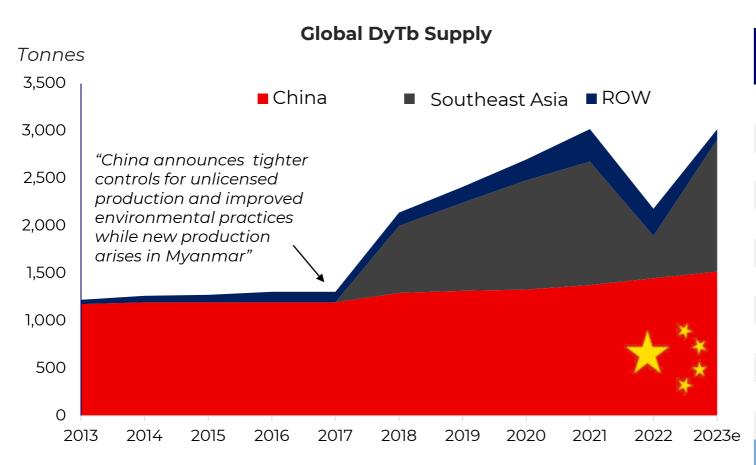
<sup>\*</sup>Source: The Chinese Ministry of Industry and Information Technology. Elements approximation based on mines grades

<sup>\*\*</sup> 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)

<sup>\*\*\*</sup> 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 newleadership team.

## **Global DyTb Supply**





#### **China Official REE Production**

Production Quotas <sup>1</sup>	LREE (Tonnes)	HREE (Tonnes)	Total (Tonnes)
2023 H2 & 2024 H1	251,660	18,340	270,000
2023	235,857	19,143	255,000
2022	190,850	19,150	210,000
2021	148,850	19,150	168,000
2020	120,850	19,150	140,000
2019	112,850	19,150	132,000
2018	100,850	19,150	120,000
2017	87,150	17,850	105,000
2016	87,150	17,850	105,000
2015	87,150	17,850	105,000
2014	87,150	17,850	105,000
2013	75,950	17,850	93,800
CAGR	10.5%	0.2%	9.5%

CHINA DyTb MONOPOLY STRENGHTHENED THROUGH SOUTHEAST ASIA (MYANMAR, LAOS, THAILAND, etc.) SUPPLY CONTROL

# **Global Awareness of Supply Imbalance**





#### China involved in tier 1 REE operations and projects

Company	Project	Country	Major Shareholder	Chinese Capital <sup>(1)</sup>	Offtake
MP Materials	Mountain Pass	USA		*:	*3
Serra Verde	Serra Verde	Brazil	*	n/a	*}:
Northern Minerals	Browns Range	Australia	*3	*):	* .
Peak Rare Earths	Ngualla	Tanzania	*3	*):	*}
Arafura Resources	Nolans	Australia	*	*}	
Hastings Technology	Yangibana	Australia	*	*;	<u>"</u> =

# DYSPROSIUM SUPPLY IDENTIFIED AT THE HIGHEST RISK AND IMPORTANCE FOR THE ELECTRIC REVOLUTION

## **Dysprosium Price Analysis**



	Current	Status	4	Aclara
Volume available	×			
Long-term contracts available	×			1
Observable transactions	×		1	
Traceable lots	×		1	
International environmental standards	×			1
Geopolitically independent	×			1
	Bid	Ask	Bid	Ask
Market Price	Chinese Price	N.A.	?	Open for negotiation



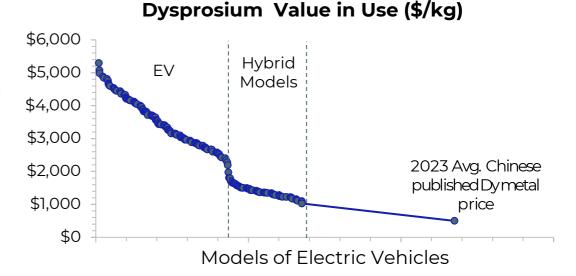
ACLARA IS EXPECTED TO PRODUCE 5% OF THE WORLD'S DyTb SUPPLY AND ITS PRODUCT IS AIMED AT HIGH PERFORMANCE AND STRONG CORPORATE GOVERNANCE

# Research: Dysprosium Value in Use



- Study made by researchers from the MIT
- Objective: understand the value in US\$
  resulting from the efficiencies gained by the
  EVs permanent magnet motor in
  comparison to the induction motor
- Value in use: supported by the efficiencies gained in the battery
- Analysis considers modelling value in use of 189 EV models (PHEV & BEV)
- Results shows that depending on the type of EV and the model, the Dysprosium value in use varies between US\$1,200-5,300

Dy content in an EV varies between 3% - 7.5% (between 60 – 150 grams)





DYSPROSIUM VALUE IN USE SHOWS SIGNIFICANT ROOM FOR PRICE APPRECIATION

### **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\*
  - ✓ Aclara's DyTb production will more than double of the production of MP Materials and Lynas Rare Earths COMBINED
- 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

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# **Aclara's HREE Ionic Clay Deposits**

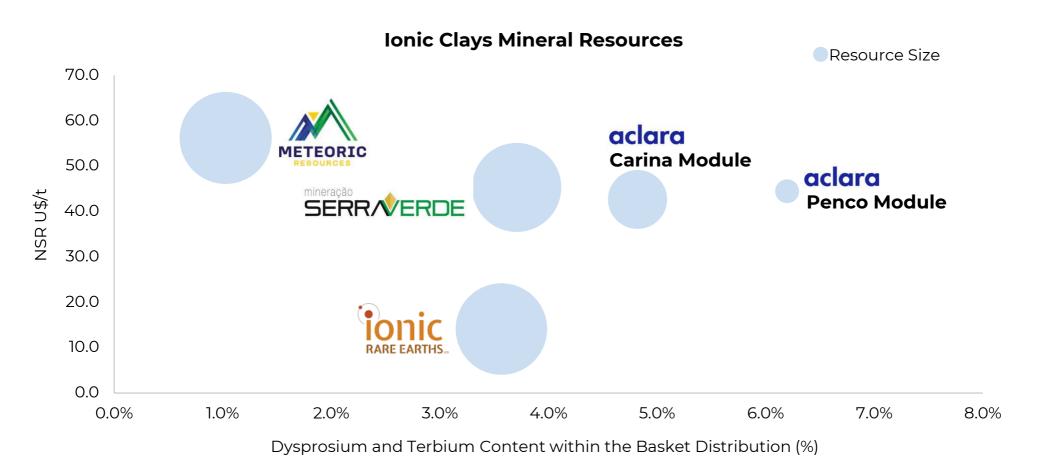


	Unit	Penco * Module*	Carina Module**
Production Forecast			
Life of Mine	years	14	17
Annual avg. DyTb production	tonnes	50	208
Annual avg. NdPr production	tonnes	125	1,189
% of 2023 DyTb Chinese Official production	%	3.3%	13.7%
Economic Parameters			
Initial CAPEX	US\$ m	129	582
Production Cost	\$/t	13.6	13.1
EBITDA	US\$ m	47	340
NPV @8%	US\$ m	128	1,186
IRR	%	23.0%	28.6%
Other			
Start of Operation	year	2027	2029
Proprietary processing flowsheet	-	Proven	Proven
Piloting works	-	Completed	In progress
Development Stage	-	FS in progress	PFS in progress

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# **Peer Group: Resource Comparison**





# STRONG DyTb CONTENT POSITIONS CARINA AS THE POTENTIAL WORLD'S LARGEST PRODUCER OUTSIDE OF CHINA

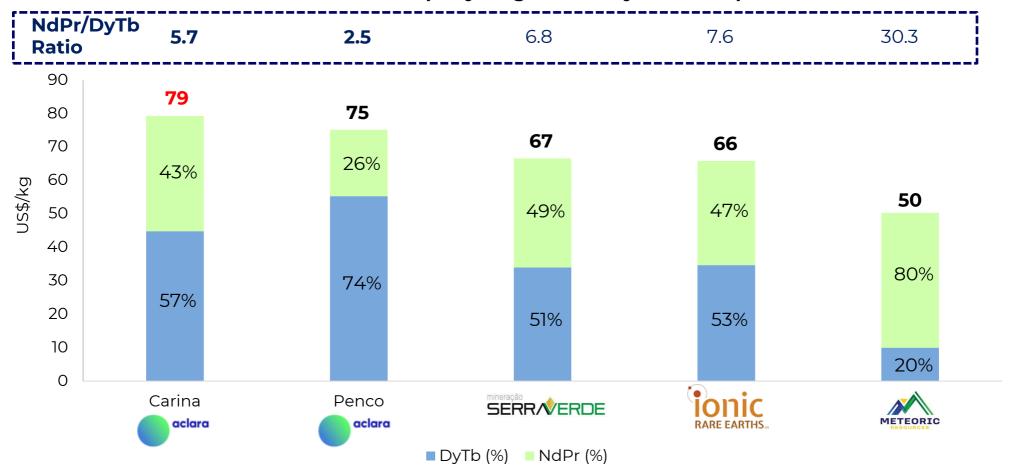
Notes

Mineral Resources Categories: Serra Verde (Measured and Indicated), Ionic Rare Earths (Measured and Indicated), Penco Module (Inferred 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> = 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

# A unique process

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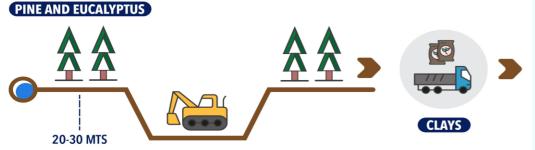
MIXED

CARBONATE

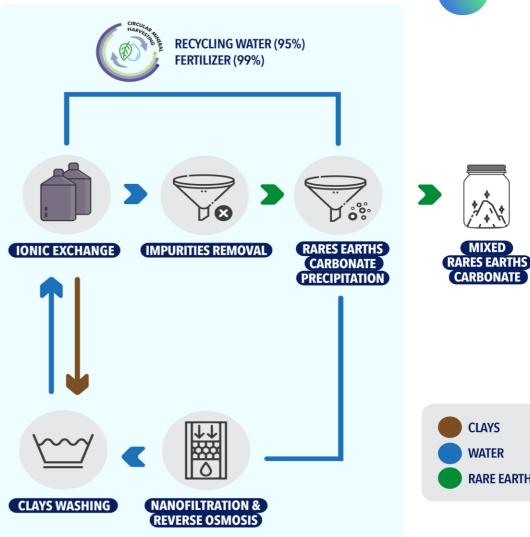
**CLAYS** WATER

**RARE EARTHS** 

A process developed by Aclara validated by the **University of Toronto** 







A SIMPLE PROCESS WITH LOW TECHNICAL RISK AND HIGH ENVIRONMENTAL COMPLIANCE

# Revegetation of impacted areas



**Current status:** forestry industry platforms



Extraction plan: shallow mining (25m depth on average)



**Reclamation:**Revegetation with native species



Example: Victoria Norte extraction area in the Penco Module

CLEAN PRODUCTION PROCESS AIMED AT RECOVERING THE ENVIRONMENTAL VALUE OF THE PROJECT AREA



# **Social Responsibility at our Core**





#### Water

- Zero water taken from natural sources
- >95% water recirculated within the process



#### Reforestation

- 8,000 Naranjillos being donated
- Exchanging an artificial forest for a natural one



#### **Dialogue**

- · Casa Aclara in Penco
- Twice visited 8,000 homes
- Social Media: SomosAclara
- Independent Polls



#### **J**obs

- Prioritizing local workers & suppliers
- Technical training already happening



#### **Diversity**

- 50% women in our team
- Joined omen in Mining (WIM)

WE LISTEN TO OUR COMMUNITIES AND REACT PROACTIVELY TO THEIR PRIORITIES

## **Vertical Integration Plan**



#### **Rare Earths Value Chain**

Separation

**Metal & Alloy** 

**Magnets** 

Multiple OEMs Targeted For Longterm Traceable HREE Supply









#### **Builds & Operate**

- Technology available
- Under evaluation

#### China

- Current overcapacity
- Most competitive in terms of cost

#### <u>Partnerships</u>

 Ongoing discussions with magnet makers

## **Short-term Catalysts**



#### Carina Module

#### 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 study: bidding process in progress

#### **Penco Module**

#### Q1 2024

Present EIA to the environmental authority for evaluation

#### 2025

Complete Feasibility study



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



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



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