



# Investor Presentation

The World's Highest Grade Ionic  
Adsorption Clay REE Deposit

 ASX:MEI

JULY 2023

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## Competent Persons’ Statements

The information in this presentation that relates to exploration results is based on information reviewed, collated and fairly represented by Dr Andrew Tunks a Competent Person and a Member of Australian Institute of Geoscientists #2820 and a consultant to Meteoric Resources NL. Dr Tunks has sufficient experience relevant to the style of mineralisation and type of deposit under consideration, and to the activity which has been undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results. Dr. Tunks consents to the inclusion in this report of the matters based on this information in the form and context in which it appears. The Company confirms that all material assumptions and technical parameters underpinning the exploration results in this report continue to apply and have not materially changed. The Company is not aware of any new information or data that materially affects the information included in this release.

The information in this presentation that relates to exploration results is based on information reviewed, collated and fairly represented by Dr Carvalho a Competent Person and a Member of the Australasian Institute of Mining and Metallurgy and a consultant to Meteoric Resources NL. Dr.Carvalho has sufficient experience relevant to the style of mineralisation and type of deposit under consideration, and to the activity which has been undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Dr. Carvalho consents to the inclusion in this report of the matters based on this information in the form and context in which it appears

The information in this presentation that relates to Mineral Resources is based on information compiled by Dr. Beck Nader, a Competent Person who is a Fellow of Australian Institute of Geoscientists #4472. Dr. Beck Nader is a consultant for BNA Mining Solutions. He has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify him as a Competent Person as defined in the 2012 Edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’. Dr. Beck Nader consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this presentation that relates to Mineral Resources is based on information compiled by Dr. Volodymyr Myadzel, a Competent Person who is a Member of Australian Institute of Geoscientists #3974. Dr. Volodymyr Myadzel is a consultant for BNA Mining Solutions. He has sufficient experience that is relevant to the style of mineralisation and 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’. Dr. Volodymyr Myadzel consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

# COMPANY OVERVIEW

Supported by an experienced and competent Board, the share price has performed significantly well this year

## MEI Snapshot

ASX Code	MEI
Share Price (17/07/23 Close)	A\$ 0.245
Shares on Issue	1,940M
Market Capitalisation	A\$480M
Liquidity (3-Month Avg.)	A\$ 3M / day
Largest Shareholder	c. 8.47%

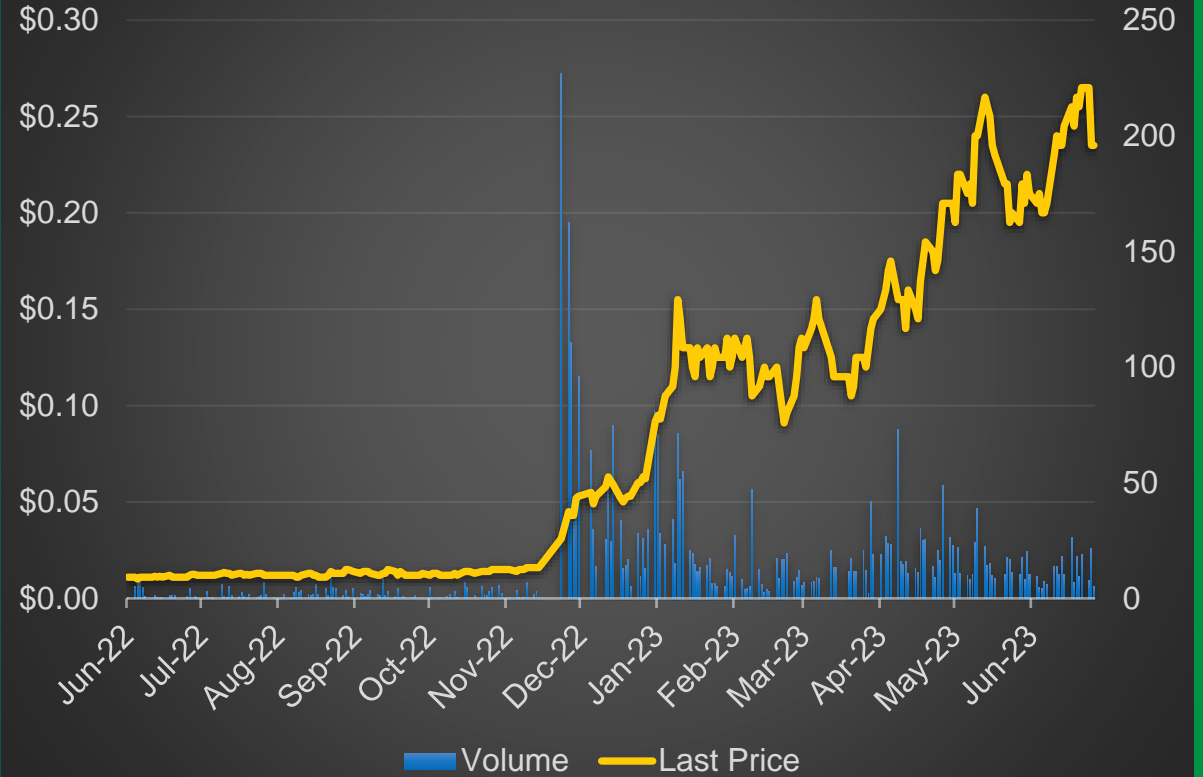


## Board of Directors

Executive Chairman	Dr Andrew Tunks
Executive Director	Dr Marcelo de Carvalho
Non-Executive Director	Dr Paul Kitto
Chief Executive Officer	Nick Holthouse



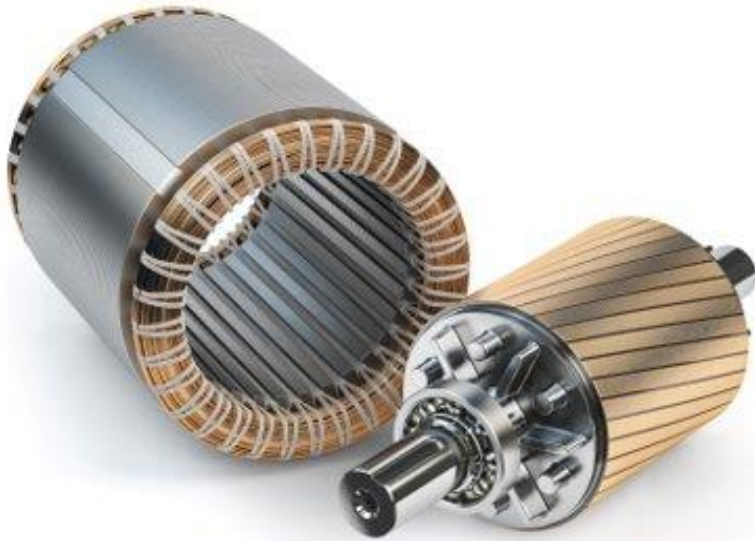
## MEI:AU



Director Experience and Background



# RARE EARTHS AND WHY WE NEED THEM



4 REE have permanent magnet power

praseodymium 59 <b>Pr</b>	neodymium 60 <b>Nd</b>
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Light Rare Earth Elements (LREE)

terbium 65 <b>Tb</b>	dysprosium 66 <b>Dy</b>
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Heavy Rare Earth Elements (HREE)

hydrogen 1 <b>H</b>																	helium 2 <b>He</b>
lithium 3 <b>Li</b>	beryllium 4 <b>Be</b>											boron 5 <b>B</b>	carbon 6 <b>C</b>	nitrogen 7 <b>N</b>	oxygen 8 <b>O</b>	fluorine 9 <b>F</b>	neon 10 <b>Ne</b>
sodium 11 <b>Na</b>	magnesium 12 <b>Mg</b>	Light Rare Earth Elements LREEs		Heavy Rare Earth Elements HREEs				High Value, High Demand Elements				aluminium 13 <b>Al</b>	silicon 14 <b>Si</b>	phosphorus 15 <b>P</b>	sulfur 16 <b>S</b>	chlorine 17 <b>Cl</b>	argon 18 <b>Ar</b>
potassium 19 <b>K</b>	calcium 20 <b>Ca</b>	scandium 21 <b>Sc</b>	titanium 22 <b>Ti</b>	vanadium 23 <b>V</b>	chromium 24 <b>Cr</b>	manganese 25 <b>Mn</b>	iron 26 <b>Fe</b>	cobalt 27 <b>Co</b>	nickel 28 <b>Ni</b>	copper 29 <b>Cu</b>	zinc 30 <b>Zn</b>	gallium 31 <b>Ga</b>	germanium 32 <b>Ge</b>	arsenic 33 <b>As</b>	selenium 34 <b>Se</b>	bromine 35 <b>Br</b>	krypton 36 <b>Kr</b>
rubidium 37 <b>Rb</b>	strontium 38 <b>Sr</b>	yttrium 39 <b>Y</b>	zirconium 40 <b>Zr</b>	niobium 41 <b>Nb</b>	molybdenum 42 <b>Mo</b>	technetium 43 <b>Tc</b>	ruthenium 44 <b>Ru</b>	rhodium 45 <b>Rh</b>	palladium 46 <b>Pd</b>	silver 47 <b>Ag</b>	cadmium 48 <b>Cd</b>	indium 49 <b>In</b>	tin 50 <b>Sn</b>	antimony 51 <b>Sb</b>	tellurium 52 <b>Te</b>	iodine 53 <b>I</b>	xenon 54 <b>Xe</b>
caesium 55 <b>Cs</b>	barium 56 <b>Ba</b>	hafnium 72 <b>Hf</b>		tantalum 73 <b>Ta</b>	tungsten 74 <b>W</b>	rhenium 75 <b>Re</b>	osmium 76 <b>Os</b>	iridium 77 <b>Ir</b>	platinum 78 <b>Pt</b>	gold 79 <b>Au</b>	mercury 80 <b>Hg</b>	thallium 81 <b>Tl</b>	lead 82 <b>Pb</b>	bismuth 83 <b>Bi</b>	polonium 84 <b>Po</b>	astatine 85 <b>At</b>	radon 86 <b>Rn</b>
francium 87 <b>Fr</b>	radium 88 <b>Ra</b>	rutherfordium 104 <b>Rf</b>		dubnium 105 <b>Db</b>	seaborgium 106 <b>Sg</b>	bohrium 107 <b>Bh</b>	hassium 108 <b>Hs</b>	meitnerium 109 <b>Mt</b>	darmstadtium 110 <b>Ds</b>	roentgenium 111 <b>Rg</b>							

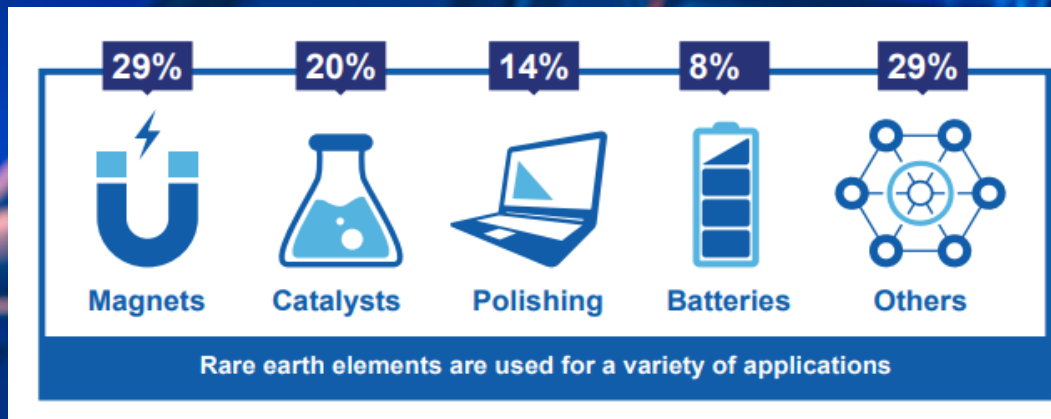
lanthanum 57 <b>La</b>	cerium 58 <b>Ce</b>	praseodymium 59 <b>Pr</b>	neodymium 60 <b>Nd</b>	promethium 61 <b>Pm</b>	samarium 62 <b>Sm</b>	europium 63 <b>Eu</b>	gadolinium 64 <b>Gd</b>	terbium 65 <b>Tb</b>	dysprosium 66 <b>Dy</b>	holmium 67 <b>Ho</b>	erbium 68 <b>Er</b>	thulium 69 <b>Tm</b>	ytterbium 70 <b>Yb</b>	lutetium 71 <b>Lu</b>
actinium 89 <b>Ac</b>	thorium 90 <b>Th</b>	protactinium 91 <b>Pa</b>	uranium 92 <b>U</b>	neptunium 93 <b>Np</b>	plutonium 94 <b>Pu</b>	americium 95 <b>Am</b>	curium 96 <b>Cm</b>	berkelium 97 <b>Bk</b>	californium 98 <b>Cf</b>	einsteinium 99 <b>Es</b>	fermium 100 <b>Fm</b>	mendelevium 101 <b>Md</b>	nobelium 102 <b>No</b>	lawrencium 103 <b>Lr</b>

# RARE EARTH OVERVIEW

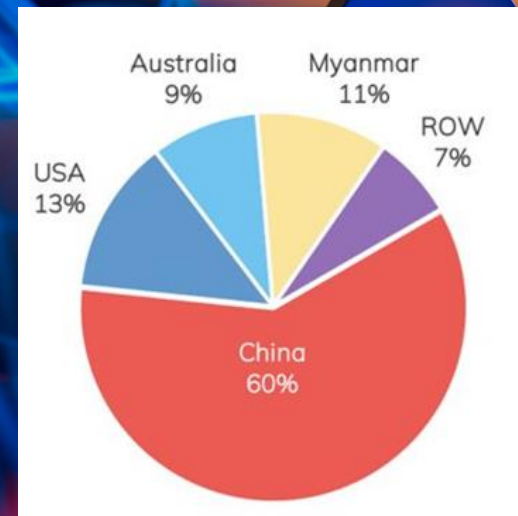
Global governments have listed rare earths as critical minerals including Australia, USA, EU, Canada and the UK

Rare Earths are critical in terms of future consumption and economic security requirements.

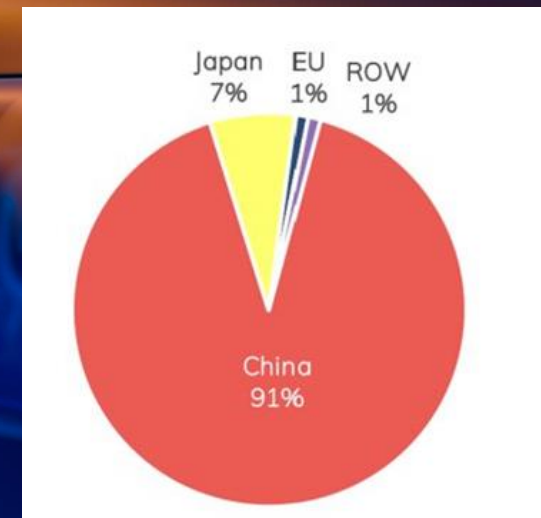
## Downstream Demand for Rare Earths



## REE Mining



## REE Magnets



Rare earth permanent magnets are the largest use of rare earths by value.

Rare Earth Magnets and Motors: A European Call for Action, A report by the Rare Earth Magnets and Motors Cluster of the European Raw Materials Alliances, Oct 2021. Argus Analytics Oct 2021.

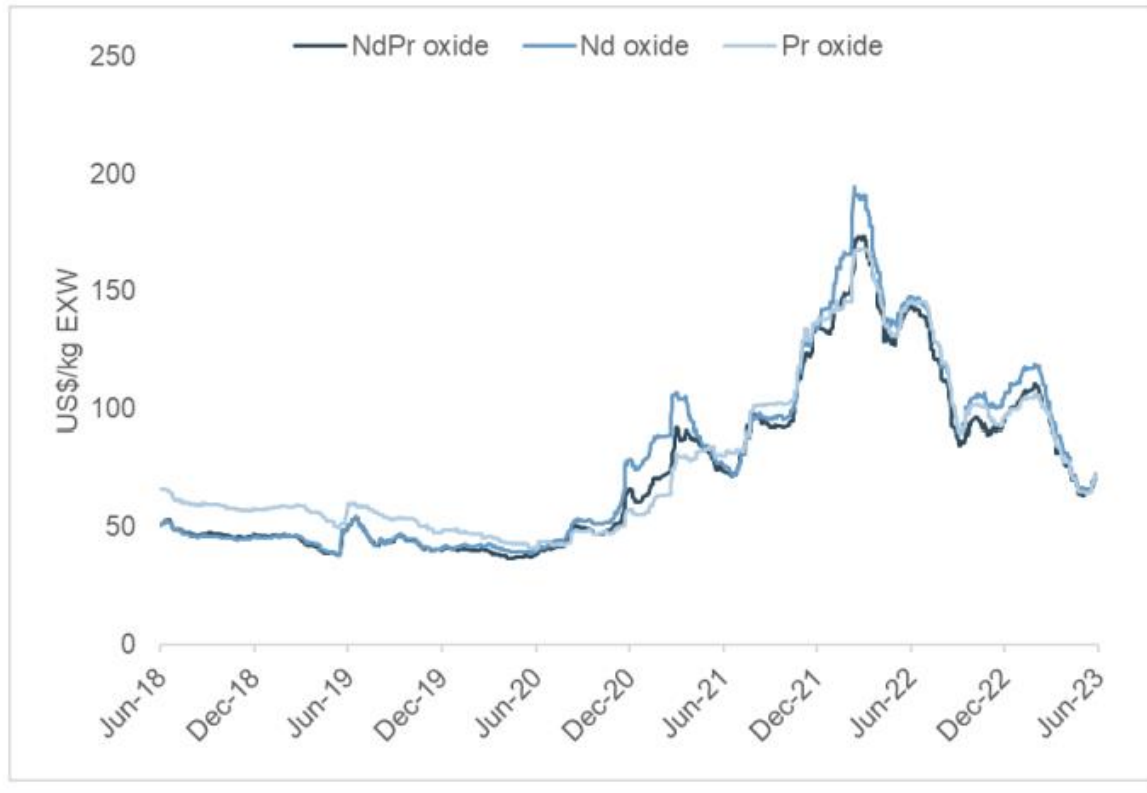
# RARE EARTH DEPOSIT TYPES AND COMPARABLES

Ionic clay allows for expedited development timelines, reduced capex requirements and a higher value product

	Ionic Clay-hosted REE	Hard Rock-hosted REE
		
<b>Location</b>	<ul style="list-style-type: none"> <li>Predominantly mined in China and Myanmar</li> </ul>	<ul style="list-style-type: none"> <li>Majority of production based in China,</li> </ul>
<b>Payability</b>	<ul style="list-style-type: none"> <li>Contains both light and heavy REEs</li> </ul>	<ul style="list-style-type: none"> <li>Typically light REEs only</li> </ul>
<b>Scale</b>	<ul style="list-style-type: none"> <li>Lower initial capex allows for increased scalability</li> <li>Typically ~US\$15/kg TREO annual output (<i>capital intensity</i>)<sup>1</sup></li> </ul>	<ul style="list-style-type: none"> <li>Typically ~US\$150/kg TREO annual output (<i>capital intensity</i>)</li> </ul>
<b>Exploration</b>	<ul style="list-style-type: none"> <li>Quick and inexpensive – aircore drilling into deeply weathered granite (clays)</li> </ul>	<ul style="list-style-type: none"> <li>Similar to other hard rock base minerals requiring substantial drilling and geochemistry</li> </ul>
<b>Mining</b>	<ul style="list-style-type: none"> <li>Surface mining, with minimal stripping of waste material</li> <li>Pits backfilled leaving no tailings or waste dumps</li> </ul>	<ul style="list-style-type: none"> <li>Drill and blast with large mining fleet (typically, with high strip ratios)</li> <li>Capital-intensive open cut and underground operations required</li> </ul>
<b>Processing</b>	<ul style="list-style-type: none"> <li>Simple dissolution of REE from clay in ammonium sulphate</li> <li>No radioactive waste streams</li> </ul>	<ul style="list-style-type: none"> <li>High temperature mineral cracking using strong reagents for REE minerals</li> <li>Tailings are often radioactive and are costly to dispose</li> </ul>

Source: (1) Hochschild Mining plc, Capital Markets Presentation, September 2021

# RARE EARTH MAGNET PRICES



Source: Bloomberg

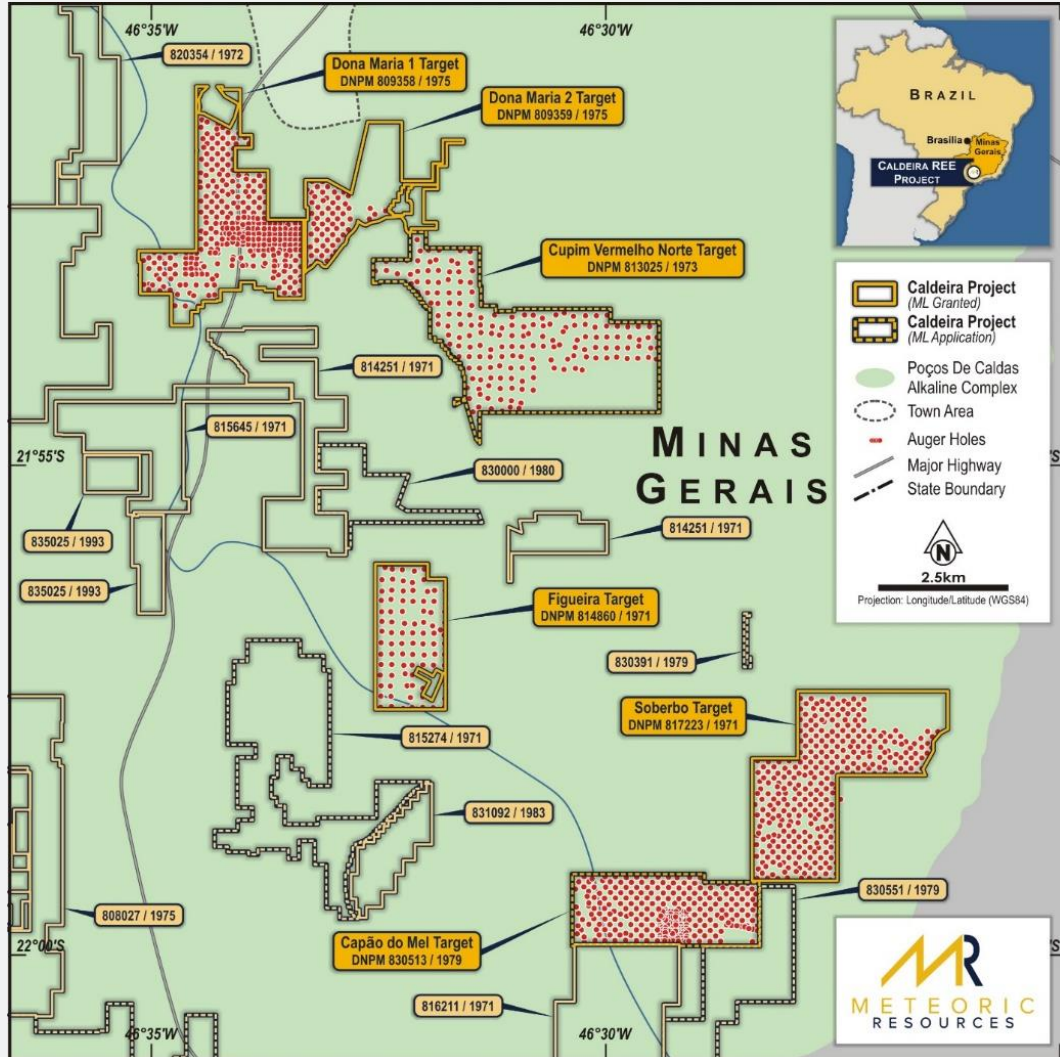


Source: Bloomberg

# SIGNIFICANT HISTORIC EXPLORATION

JOGMEC successfully explored project between 2016 and 2019

## Drilling Collar Plan – 1311 Holes



## Drilling Results (ASX 16/12/2022)

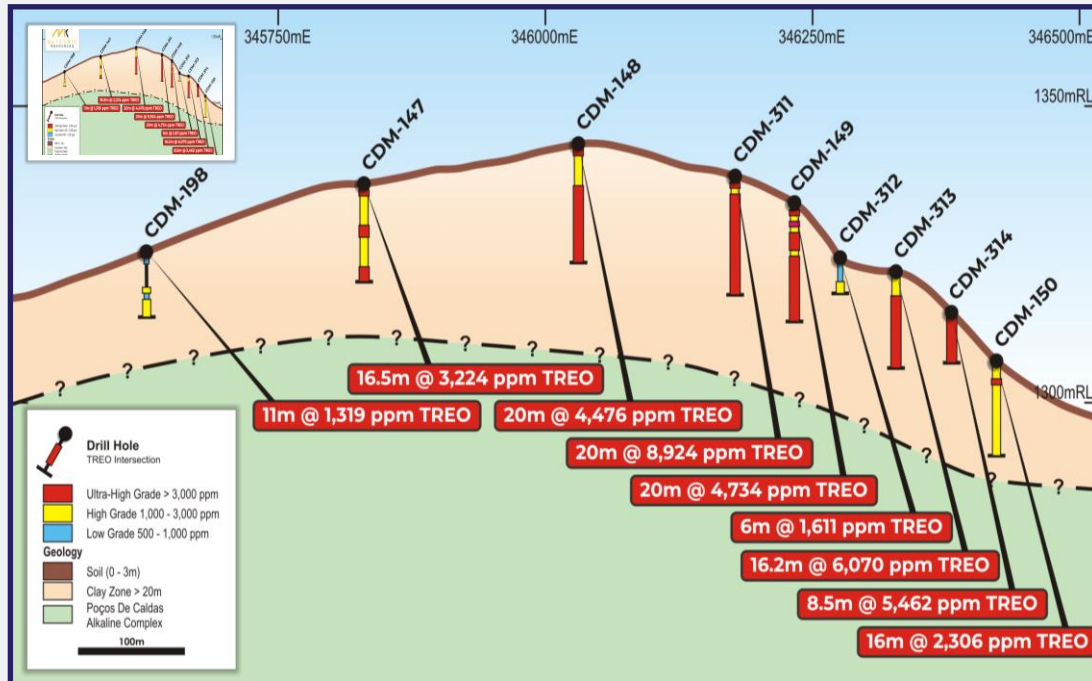
10m @	<b>8,810</b> ppm TREO ending in	<b>1,942</b> ppm TREO	(Hole FG-82)
20m @	<b>8,924</b> ppm TREO ending in	<b>9,945</b> ppm TREO	(Hole CDM-311)
15m @	<b>7,042</b> ppm TREO ending in	<b>3,425</b> ppm TREO	(Hole CDM-286)
7m @	<b>7,646</b> ppm TREO ending in	<b>12,429</b> ppm TREO	(Hole DM2-28)
20m @	<b>6,779</b> ppm TREO ending in	<b>4,652</b> ppm TREO	(Hole CDM-47)
12m @	<b>8,367</b> ppm TREO ending in	<b>5,829</b> ppm TREO	(Hole CVN-22)
13m @	<b>6,600</b> ppm TREO ending in	<b>6,817</b> ppm TREO	(Hole CVN-80)
20m @	<b>5,918</b> ppm TREO ending in	<b>2,239</b> ppm TREO	(Hole CDM-27)
14m @	<b>5,979</b> ppm TREO ending in	<b>2,325</b> ppm TREO	(Hole FG-27)
15m @	<b>7,551</b> ppm TREO ending in	<b>7,915</b> ppm TREO	(Hole FG-89)
13m @	<b>7,641</b> ppm TREO ending in	<b>2,072</b> ppm TREO	(Hole SB-109)
19m @	<b>6,895</b> ppm TREO ending in	<b>7,840</b> ppm TREO	(Hole CDM-134)
15m @	<b>6,709</b> ppm TREO ending in	<b>4,460</b> ppm TREO	(Hole SB-44)



# CALDEIRA GRADES, DRILLING INTERCEPTS AND PEERS

Outstanding grades, wide continuous intercepts and open at depth

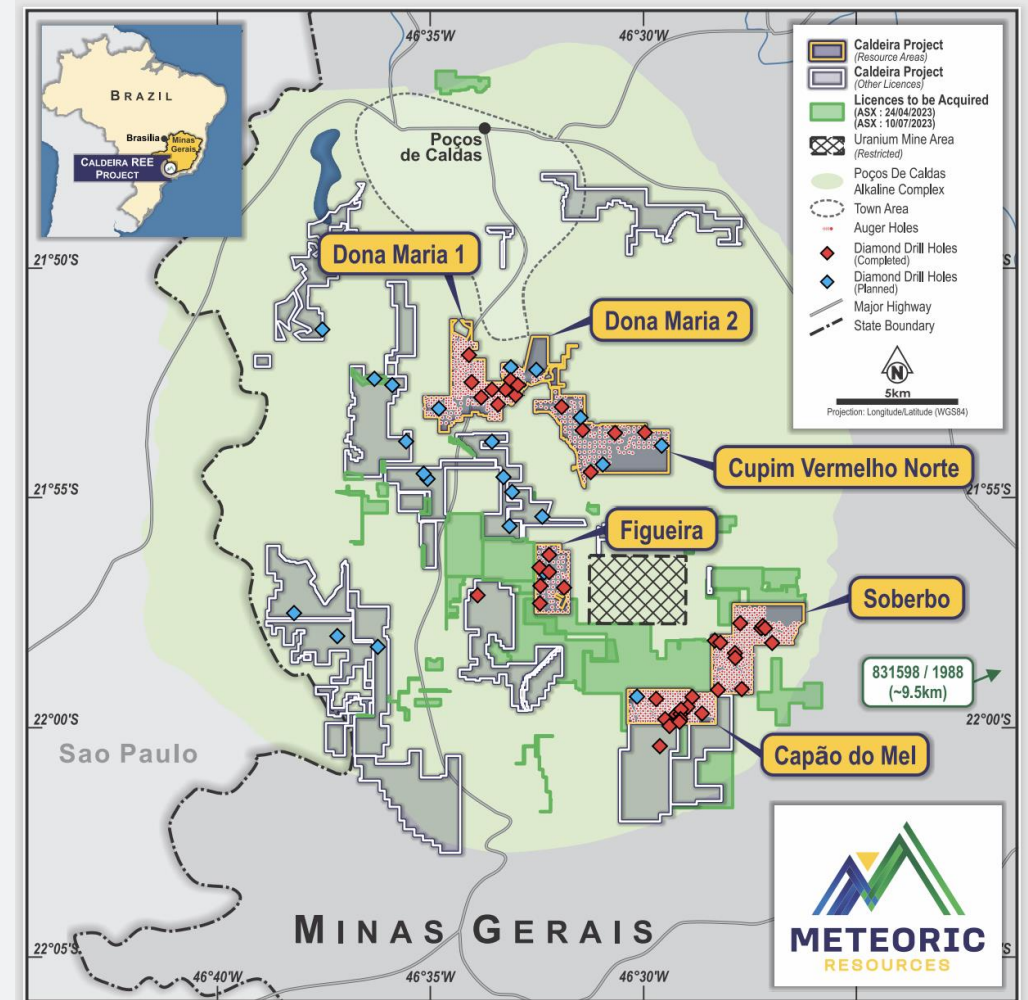
## Capo Do Mel Prospect



### Stylised Cross Section 7,566,800m N

New drilling is designed to intersect the underlying granite (green) at depth to establish the thickness of the prospective clay zone. Every hole on this section finished in grades above 1,000ppm TREO. Vertical exaggeration = 5 times (refer ASX release 16/12/2022).

## Caldeira Project – Diamond Drilling



# TIER 1 IONIC ADSORPTION CLAY (IAC) RARE EARTH

The due diligence program and previous metallurgical work has proven the project's IAC characteristics across various prospects

## Metallurgy Bulk Sample

- 4,917ppm TREO
- 25.5% Magnet REE
- MREO = 1,250 ppm

## Metallurgy Results and Future Work

- Leach in ammonium sulphate solution
- pH 4
- Maximum leach % occurring within 5-10mins
- Recoveries to the leach are exceptional
  - Nd & Pr above 70%
  - Tb 60-70% and
  - Dy 50-60%

## Metallurgical Recoveries (ASX: 27/6/23)

REO	Sample1	Sample2	Sample3	Sample4	AVERAGE
La <sub>2</sub> O <sub>3</sub>	61%	62%	59%	64%	<b>62%</b>
Ce <sub>2</sub> O <sub>3</sub>	4%	4%	4%	4%	<b>4%</b>
Pr <sub>6</sub> O <sub>11</sub>	53%	51%	49%	54%	<b>52%</b>
Nd <sub>2</sub> O <sub>3</sub>	65%	63%	61%	67%	<b>64%</b>
Sm <sub>2</sub> O <sub>3</sub>	53%	52%	48%	53%	<b>52%</b>
Eu <sub>2</sub> O <sub>3</sub>	55%	53%	52%	56%	<b>54%</b>
Gd <sub>2</sub> O <sub>3</sub>	56%	57%	53%	57%	<b>56%</b>
Tb <sub>4</sub> O <sub>7</sub>	50%	47%	42%	48%	<b>47%</b>
Dy <sub>2</sub> O <sub>3</sub>	41%	38%	35%	40%	<b>39%</b>
Ho <sub>2</sub> O <sub>3</sub>	33%	28%	15%	29%	<b>26%</b>
Er <sub>2</sub> O <sub>3</sub>	28%	29%	31%	29%	<b>29%</b>
Tm <sub>2</sub> O <sub>3</sub>	26%	25%	22%	25%	<b>25%</b>
Yb <sub>2</sub> O <sub>3</sub>	15%	19%	17%	19%	<b>18%</b>
Lu <sub>2</sub> O <sub>3</sub>	21%	21%	19%	22%	<b>21%</b>
Y <sub>2</sub> O <sub>3</sub>	37%	38%	35%	37%	<b>37%</b>

Classification	Element	REE (ppm)	Conversion Factor	Oxide	REO (ppm)	REO /TREO %	
LREE	Lanthanum	La	1961	1.1728	La <sub>2</sub> O <sub>3</sub>	2300	46.8%
	Cerium	Ce	731	1.2284	Ce <sub>2</sub> O <sub>3</sub>	898	18.3%
	Praseodymium	Pr	274	1.1702	Pr <sub>6</sub> O <sub>11</sub>	321	6.5%
	Neodymium	Ne	756	1.1664	Nd <sub>2</sub> O <sub>3</sub>	882	17.9%
HREE	Samarium	Sm	86	1.1596	Sm <sub>2</sub> O <sub>3</sub>	100	2.0%
	Europium	Eu	22	1.1579	Eu <sub>2</sub> O <sub>3</sub>	25	0.5%
	Gadolinium	Gd	60	1.1526	Gd <sub>2</sub> O <sub>3</sub>	69	1.4%
	Terbium	Tb	8	1.151	Tb <sub>4</sub> O <sub>7</sub>	9	0.2%
	Dysprosium	Dy	35	1.1477	Dy <sub>2</sub> O <sub>3</sub>	40	0.8%
	Holmium	Ho	6	1.1455	Ho <sub>2</sub> O <sub>3</sub>	7	0.1%
	Erbium	Er	15	1.1435	Er <sub>2</sub> O <sub>3</sub>	17	0.3%
	Thulium	Th	2	1.1142	Tm <sub>2</sub> O <sub>3</sub>	2	0.0%
	Ytterbium	Yt	11	1.1379	Yb <sub>2</sub> O <sub>3</sub>	13	0.3%
	Lutetium	Lu	2	1.1372	Lu <sub>2</sub> O <sub>3</sub>	2	0.0%
	Yttrium	Y	183	1.2697	Y <sub>2</sub> O <sub>3</sub>	232	4.7%
<b>Totals</b>			<b>4151</b>		<b>4917</b>	<b>100%</b>	

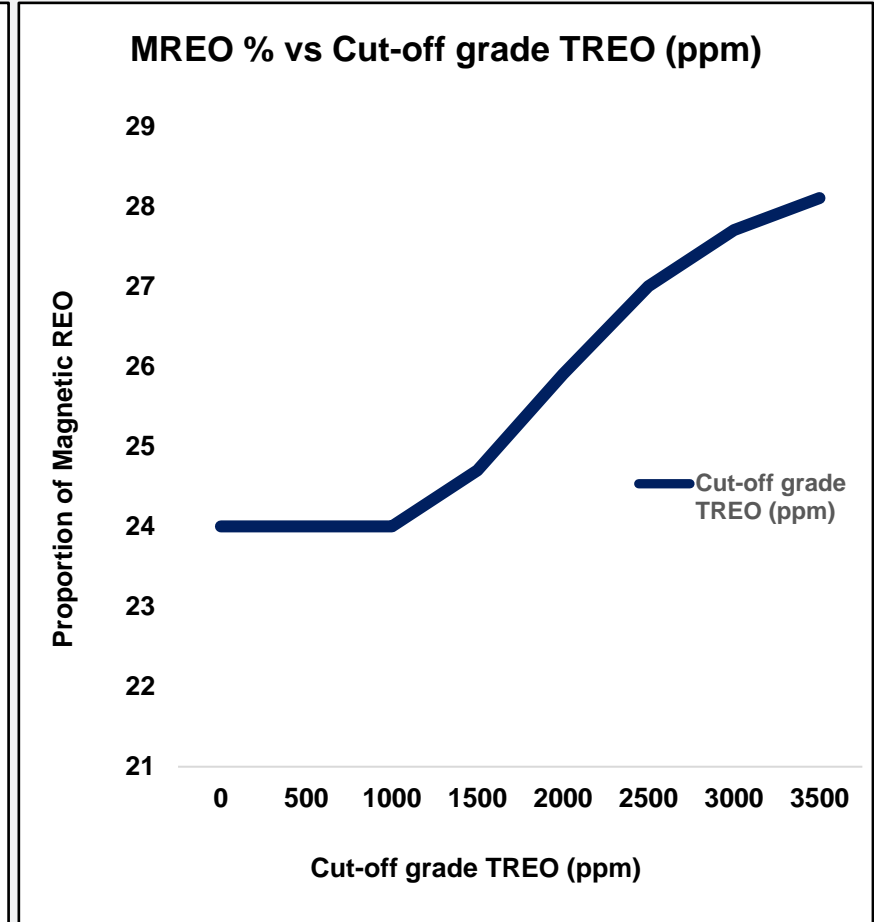
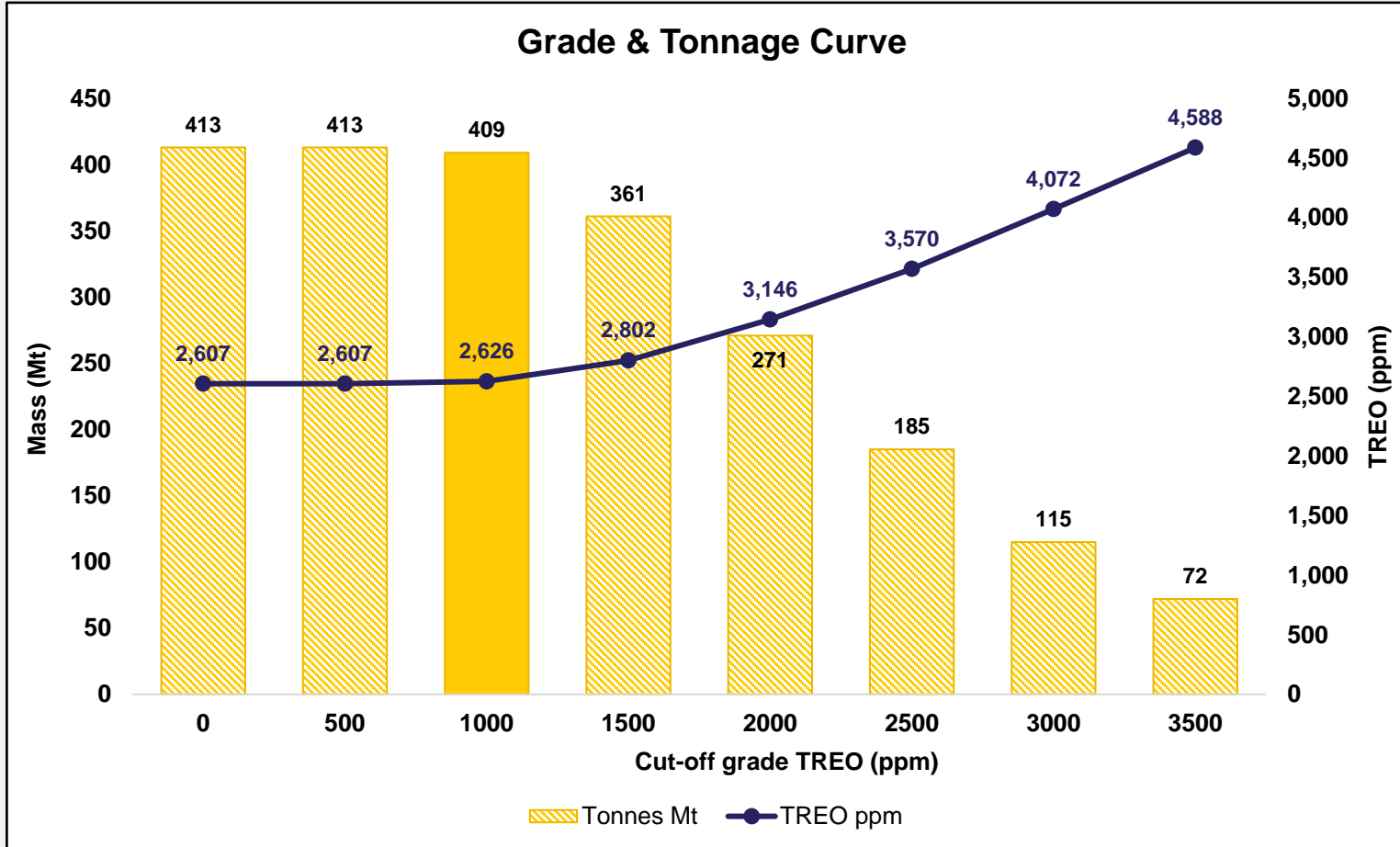
# CALDEIRA PROJECT MAIDEN RESOURCES – 409Mt @ 2626 ppm TREO

World's Highest Grade Ionic Adsorption Clay REE Deposit (ASX 1/5/2023)

Licence	JORC Category	Tonnes Mt	TREO ppm	Pr <sub>6</sub> O <sub>11</sub> ppm	Nd <sub>2</sub> O <sub>3</sub> ppm	Tb <sub>4</sub> O <sub>7</sub> ppm	Dy <sub>2</sub> O <sub>3</sub> ppm	MREO ppm	MREO/TREO (%)
Capão do Mel	Inferred	<b>68</b>	<b>2,692</b>	148	399	4	22	572	<b>21.3%</b>
CVN	Inferred	<b>104</b>	<b>2,485</b>	152	472	5	26	655	<b>26.4%</b>
Dona Maria 1 & 2	Inferred	<b>94</b>	<b>2,320</b>	135	404	5	25	569	<b>24.5%</b>
Figueira	Inferred	<b>50</b>	<b>2,811</b>	135	377	5	26	542	<b>19.3%</b>
Soberbo	Inferred	<b>92</b>	<b>2,948</b>	190	537	6	27	759	<b>25.8%</b>
<b>Total</b>	<b>Inferred</b>	<b>409</b>	<b>2,626</b>	<b>154</b>	<b>447</b>	<b>5</b>	<b>25</b>	<b>631</b>	<b>24.0%</b>

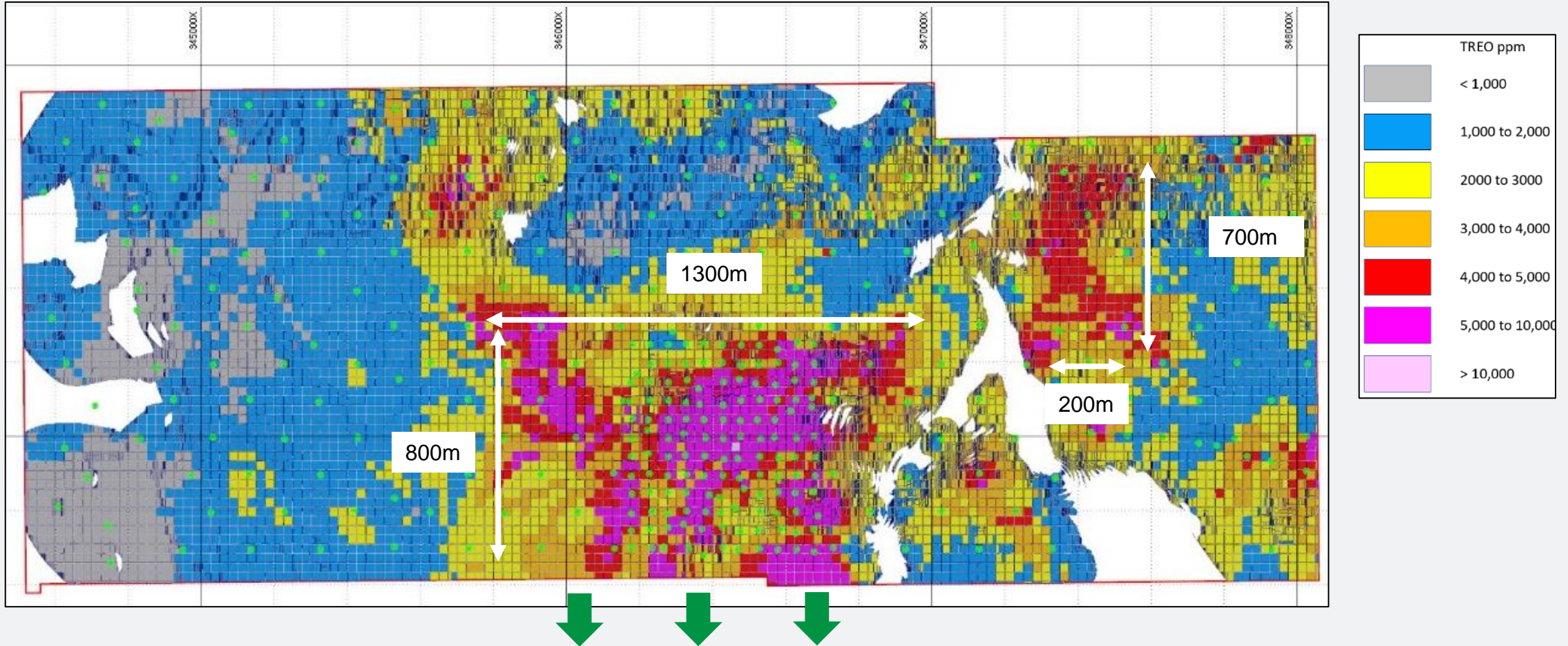
# SUBSTANTIAL ULTRA HIGH GRADE RESOURCE

Magnetic Rare Earth Oxide proportion increases as cut-off grade increases

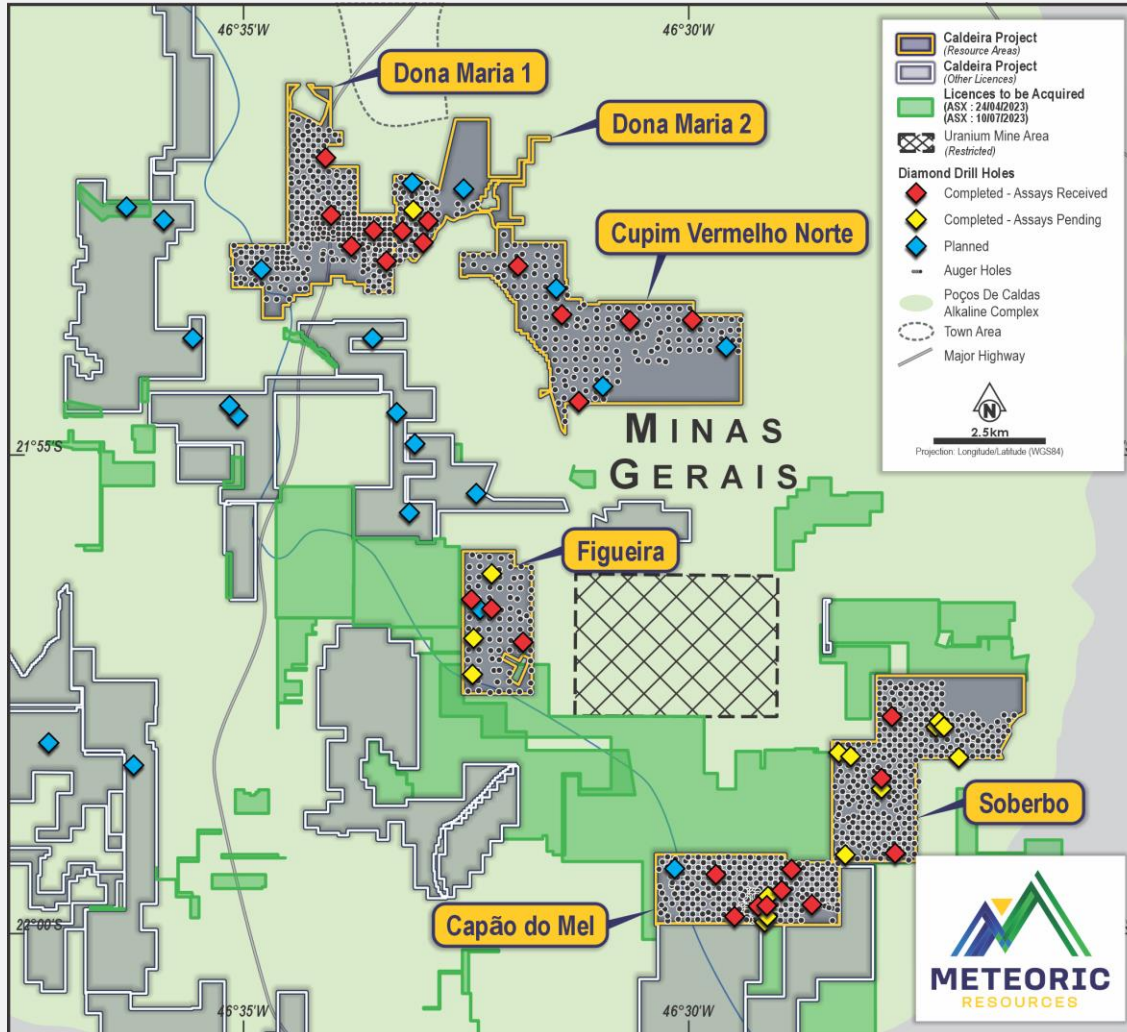


# HIGH GRADE START TO MINE LIFE

Capão do Mel - Plan View Block Model



# CALDEIRA – MOVING FORWARD WITH METEORIC



## Drilling Highlights (ASX 24/7/23)

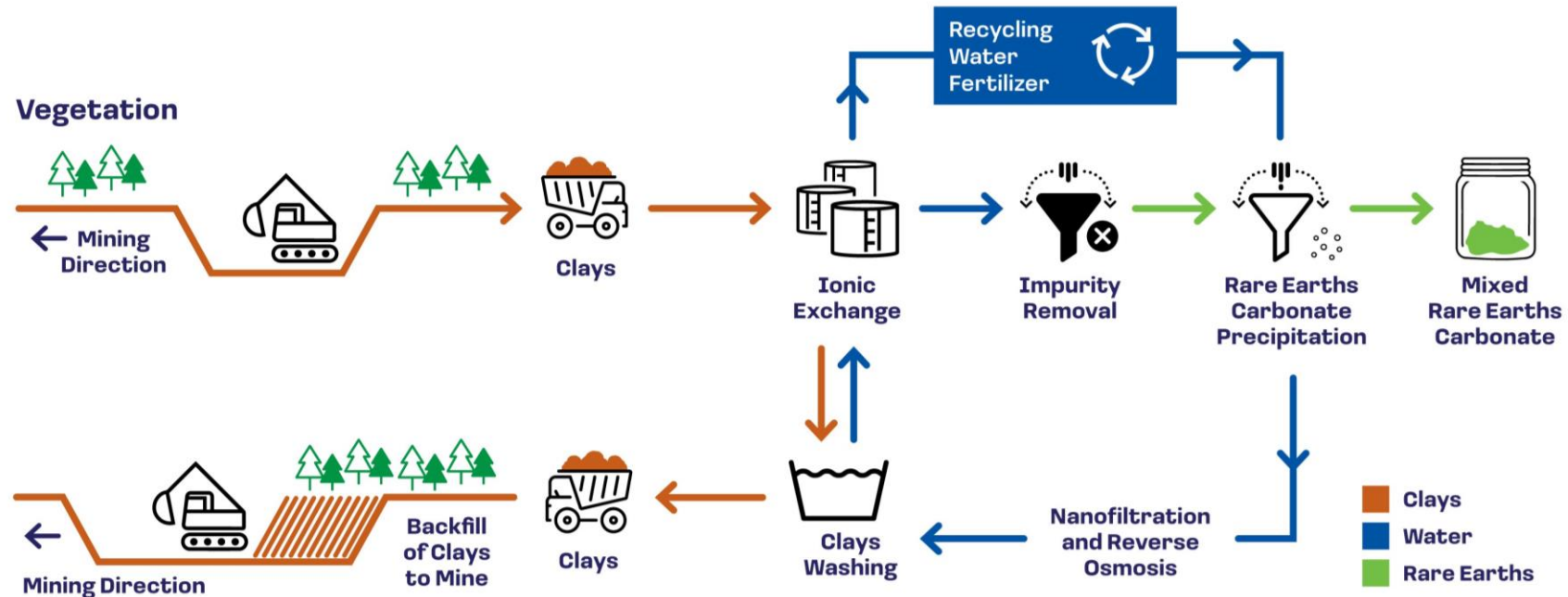
- CDMDD001 - 31.2m @ 3,769ppm TREO, including 16.4m @ 5,537ppm TREO
- CDMDD004 - 16.4m @ 5,967ppm TREO, including 10.7m @ 7,243ppm TREO
- CDMDD006 – 36.0 @ 2,881ppm TREO, including – 9.0m @ 4,228ppm TREO.
- CVNDD001 - 19.2m @ 5,825ppm TREO
- CVNDD003 - 31.8m @ 3,243ppm TREO, including 4m @ 16,074 TREO
- DM1DD003 – 9.93m @ 4,741ppm TREO
- FGDD002 - 58.31m @ 2,449ppm TREO, including 5.53m @ 4,834ppm TREO
- FGDD003 - 45.55m @ 3,352ppm TREO, including FGDD003 - 11.7m @ 6,108 TREO

# A Green Mine for Green Metals

## IONIC ADSORPTION CLAY PROJECT FLOW SHEET

### Simple, Environmentally Friendly Process

Ammonium Sulfate = Fertilizer =  $(\text{NH}_4)_2 \text{SO}_4$



A simple process with low technical risk and high environmental compliance

- No drill and blast
- No waste dumps
- No tailings dams

# Contact Information

## **Meteoric Resources NL**

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