

### RARE EARTHS – CRITICAL TO A CLEAN GREEN FUTURE





# CANADA RARE EARTH CORP.

In The Business of Rare Earths

Corporate Overview
November 2020



# FORWARD LOOKING STATEMENTS

Information set forth in this presentation may contain forward-looking statements. Forward-looking statements are statements that relate to future, not past, events. In this context, forward-looking statements often address a company's expected future business and financial performance, and often contain words such as "anticipate", "believe", "plan", "estimate", "expect", and "intend", statements that an action or event "may", "might", "could", "should", or "will" be taken or occur, or other similar expressions. By their nature, forward-looking statements involve known and unknown risks, uncertainties, and other factors which may cause our actual results, performance or achievements, or other future events, to be materially different from any future results, performance, or achievements expressed or implied by such forward-looking statements. Such factors include, among others, the following risks: the risks associated with outstanding litigation, in any; risks associated with project development; the need for additional financing; operation risks associated with mineral processing; fluctuations in commodity process; title matters; environmental liability claims, and insurance; reliance on key personnel; the potential for conflicts of interest among certain officers, directors, or promoters with certain other projects; the absence of dividends; competition; dilution; the volatility of our common share price and volume; and tax consequences to Shareholders. Forward-looking statements are made based on management's beliefs, estimates and opinions on the date that statements are made and Canada Rare Earth Corp. undertakes no obligation to update forward-looking statements if these beliefs, estimates, and opinions or other circumstances should change. Investors are cautioned against attributing undue certainty to forward-looking statements.

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# **BUSINESS OPPORTUNITY**

# To become **THE TRUSTED SUPPLIER**

of the complete range of commercially traded rare earth products outside of China

### The Challenge / The Opportunity:

China dominates the rare earth industry and is aggressively capturing more of the \$1 Trillion application market causing **supply anxiety** for rare earth users outside of China.

### Target customer group:

Major international manufacturing companies and their supply networks outside of China.



# **BUSINESS OPPORTUNITY**

# Current Supply Solutions and Issues/Risks:

Current solution to "Challenge"	Issues & Risks
Purchase from suppliers in China	Uncertain, tenuous supply, potentially subject to "trade wars" & tariffs
Establish manufacturing in China	Requires the transfer of IP to China Increases value-add delivered by China in China
Engineer away from using rare earths	Largely difficult, impossible or uneconomical to do Typically results in loss of performance or efficiency
Purchase from refineries outside China	Few significant refineries operating outside China Limited production volumes and product variety Major player, Lynas, is facing permitting risks "Planned" processing facilities do not involve know-how or teams with experience, except Canada Rare Earth
Focus on upstream asset not on mid stream refining capability	Doesn't solve the angst for non-China based industry



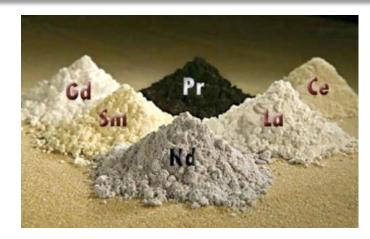
# **BUSINESS OPPORTUNITY**

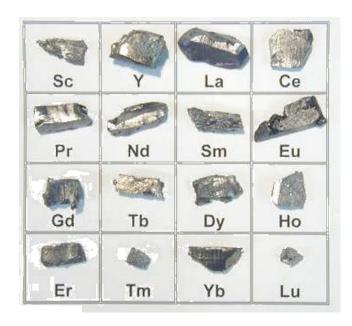
Market Size Today	150,000 mt/yr of oxides with a selling price of US\$4 billion
Next 3 to 5 years Growth	200,000 to 250,000 mt/yr with a selling price of US\$6 billion to US\$7 billion
Non-China Portion of Market	Approximately 15% of global supply and demand is outside China. Equates to roughly \$600 million today and growing to close to US\$ 1 billion Demand % will increase with assured supply
Growth trends and speed	Rare earths enhance technological advances. The base market will continue and can expand exponentially with certainty of supply
Uncertain Supply	A cluster of producers in one region dominate global supply causing angst for major, international customers
Oxides Market Location	Currently the majority of consumption is within China because of greater certainty of supply Canada Rare Earth sells internationally to the pent-up demand in Europe, Asia and North America
Concentrates Market Location	Currently, Canada Rare Earth sells to our client base in China We will also deliver to our refineries in SE Asia, S. America and N. America as they become operational

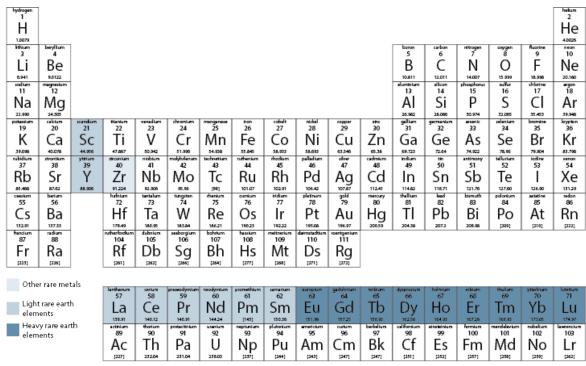


# RARE EARTHS ARE....

- 17 elements used for improved performance and quality
- Found combined together in mineral deposits
- Rare earths are of little industrial value unless separated in oxides, metals, or compounds









# RARE EARTH APPLICATIONS

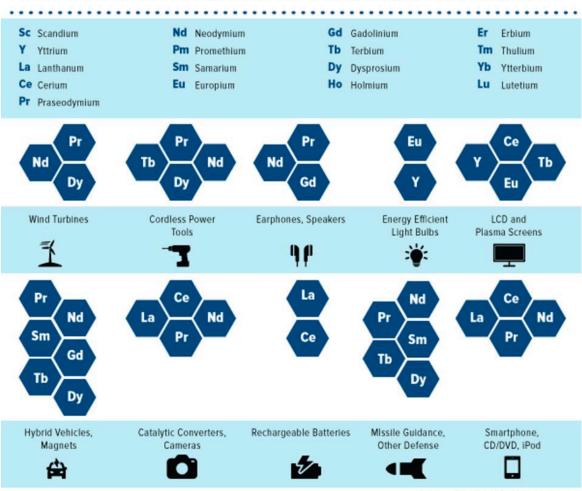
- Rare earths are used in a countless list of applications
- Unique properties make them invaluable for improved performance, efficiency and quality of the end products
- New applications are being developed in rapid
   succession





### MULTIPLE RARE EARTHS IN APPLICATIONS

#### **USES AND PROPERTIES OF RARE EARTH ELEMENTS**



Source: Stratfor, U.S. Global Investors

U.S. GLOBAL INVESTORS



# **ECONOMIC BENEFIT POTENTIAL**

# From a report by the American Chemistry Council in April 2014:

"each job in the rare earth industry generates an additional 5.0 jobs elsewhere in the North American economy"

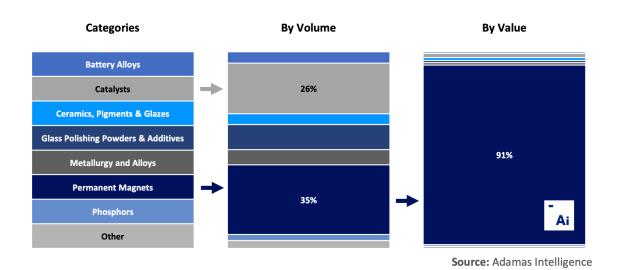
"the industry generates a total of \$1.9 billion in economic output in North America"

"The rare earth industry is supportive of \$329.6 billion in economic output in "downstream" end-market products and technologies that employ 618,800 workers (with a combined payroll of \$37.6 billion) in the United States and Canada"

Raw Materials	Basic Rare Earth Products	Engineered Rare Earth Materials	Components & Systems	End Market Products & Technologies
Monazite Bastnäsite Ionic Clays	Separated Rare Earth Oxides Oxylates Chlorides & Nitrates Rare Earth Mixed Oxides Rare Earth Metals	Rare Earth Alloys Magnets & Magnetic Powders Catalysts Metallurgical Additives Polishing Powders Phosphors Glass Additives Ceramics Water Purification Chemicals	Batteries Controls Drives Fabricated Metal Products  Lasers Motors & Generators  Sensors  Transducers Other Systems & Components	Technologies Hybrid, Electric, PHEV's & Other Vehicles HVAC and Home  Appliance Systems Consumer Electronics Energy Efficient Lighting Communications & Electronics Audio Equipment Defense  Technologies Other Electronics Advanced Optics & Other Glass Products Oil Refining Electric Power

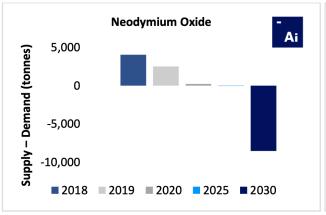


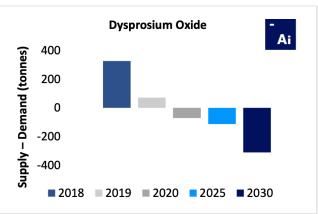
# MARKET DRIVERS



**Permanent magnet** applications such as in electric vehicles and clean energy are the dominant demand drivers

Supply will struggle to keep up with the rapidly rising demand for critical magnet elements such as Neodymium (Nd), Praseodymium (Pr), Terbium (Tb) and Dysprosium (Dy)





Source: Adamas Intelligence



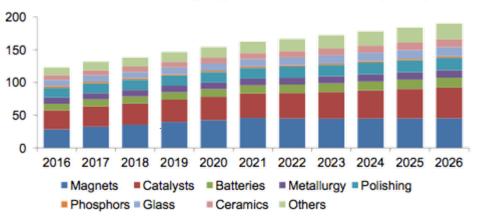
# FUTURE OF RARE EARTH MARKET

### Demand growth for rare earths is strong and increasing

Applications will continue rapid development especially as a dependable, cost effective, high quality supply is established outside of China

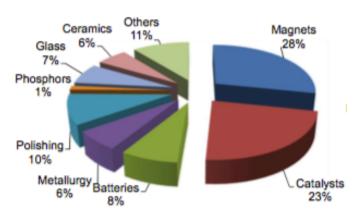
- NdFeB magnet growth will shape the industry over the next five years, resulting in an increasing deficit
  of neodymium and rising prices for this element
- In the longer-term, prices may fall as NdFeB consumers move to alternative technologies
- Rare earth demand forecast to grow at 6%py 2016 to 2012 (based on growth in magnets and catalysts)
- Rare earth demand forecast to grow by 3%py 2021 to 2026 (as demand for magnets slows and substitution begins
- Phosphors market continues to contract

#### Rare earth demand by application, 2016 to 2026 (t REO)



Source: Roskill

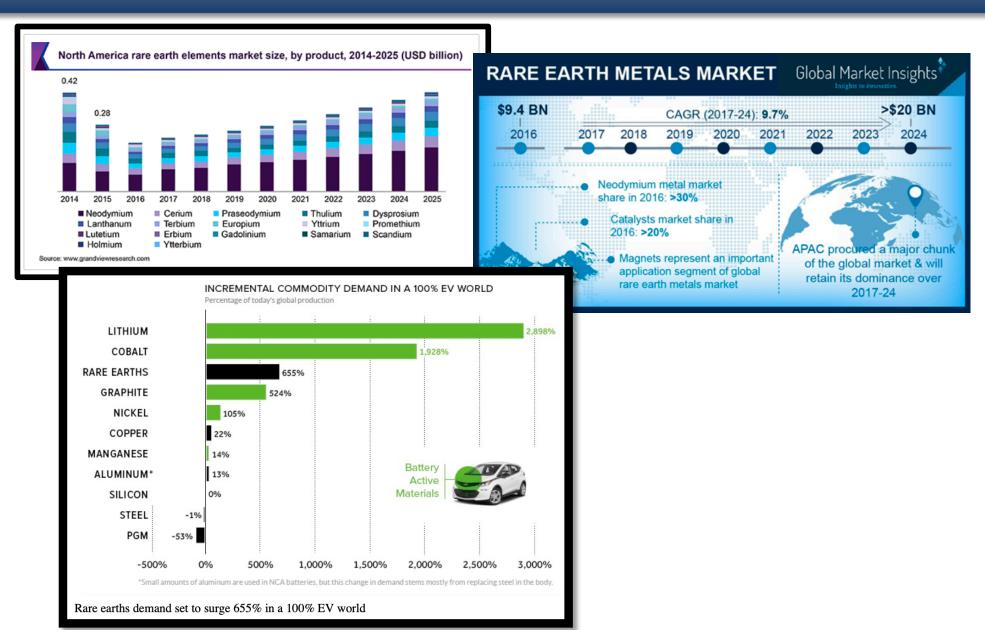
# Rare earth demand by application, 2021 (163kt REO)



Roskill
Approachable - Independent - Expert



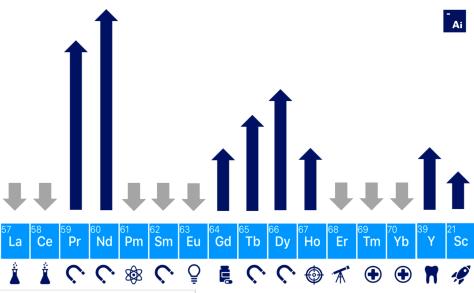
# Market Growth

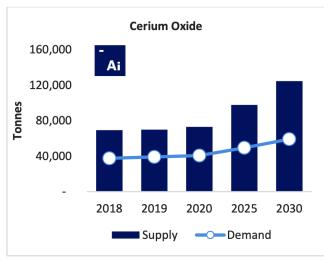


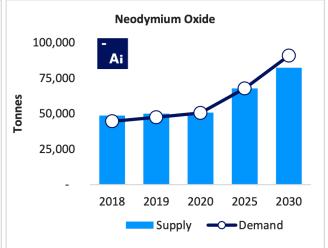


### BURDEN OF EXCESS SUPPLY ON PRICES OF KEY ELEMENTS

In order to meet the growing demand for key elements such as Nd, Pr, Dy, and Tb prices are required to carry costs of producing the full set of elements causing excess supply for plentiful elements such as Ce and La.







Source: Adamas Intelligence



# THE MARKET DILEMMA

# **Supply**

Explore, Mine, Concentrate Separation & Refining Oxides, Metals and Alloys

Hundreds of companies exploring have 4 choices

China dominates

Rest of world will separate primarily light rare earths

Canada Rare Earth refineries will produce all the **full range** of critical rare earths

Major customers have 4 choices

Sell to China

Engage "major" engineering firm

Deploy "new" unproven technologies

Access proven technology and capabilities with Canada Rare Earth

Buy from China

Manufacture in China

Engineer away from rare earths

Purchase rare earths from refineries outside of China

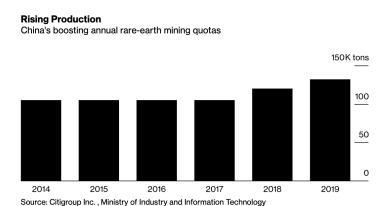
**Demand** 



# COMMENTS FROM THE MARKET

China said this month it's raising its annual mining quota for rare-earths to 132,000 tons, 10% above last year's record high. It's a move likely to weigh on global prices, dealing a blow to rivals including the U.S. and Australia, countries that agreed just <u>last</u> week to jointly accelerate new projects in a push to diversify the supply chain.

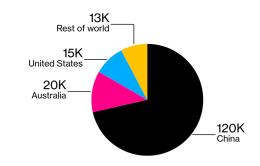
If you're reading this story on a smartphone, you probably have China to thank for it. The Asian nation generates about 70% of mined rare earths and controls 90% of a \$4 billion global market for materials used in magnets and motors that power phones, wind turbines, electric vehicles and military hardware.



Multinationals as varied as Boeing, Honeywell, Sherwin-Williams, Bayer, ExxonMobil, Stanley Black & Decker and Qualcomm all have financial interests in the availability of REEs. The iPhone in your pocket would be inoperable without 16 of the 17 rare earth metals. Each F-35 fighter jet is estimated to contain about half a ton of the elements. To improve motor efficiency, Tesla's 2019 Model S and Model X are installed with a permanent magnet motor that uses rare earth neodymium-iron-boron magnets.

Chinese Dominance
Global mined rare-earths production in 2018

China's dominance poses a considerable economic and national security risk to the U.S., one that's become all the more apparent in the months since trade relations between Beijing and Washington turned sour. "Control of the rare earth supply gives Beijing both economic and military advantages over the U.S.," writes Michael Silver, CEO of American Elements, in a Wall Street Journal op-ed.



BloombergNEF, USGS



# **CUSTOMER ANGST**

### **Customers Need**

- Secure, dependable, timely source of rare earth products
- Fair and predictable material costs
- Flexible supply chain with minimized risks due to geopolitical landscape

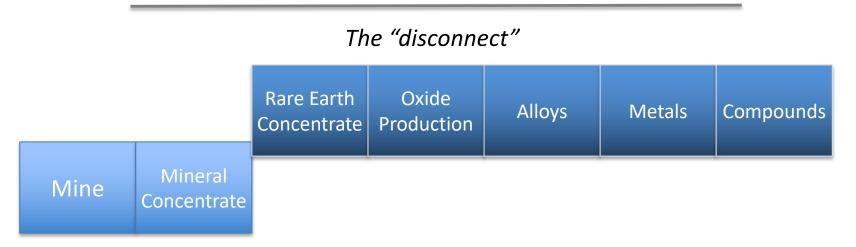
### **Risks in Current Supply Sources**

 Overwhelming majority of supply and processing is provided by a single country



# Our Unique Value-Add

### Rare Earths Are Not Rare... Processing is



China dominates with 6 state-owned rare earth companies that operate 30+ refineries

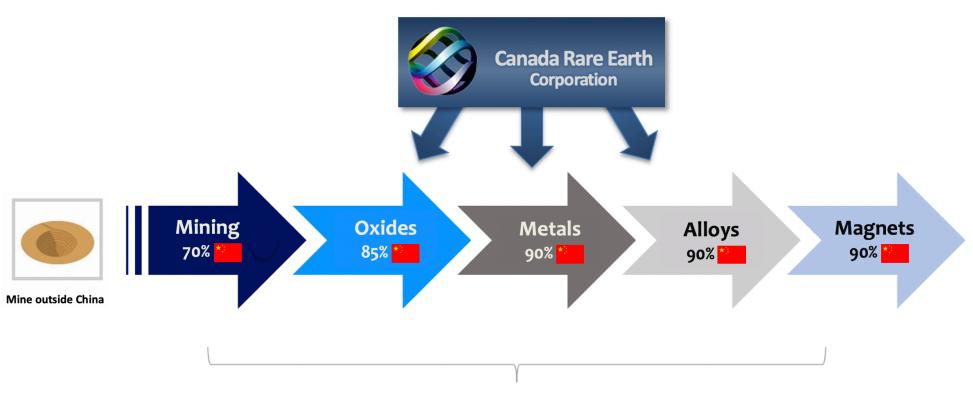
Source: Adamas Intelligence

In conclusion, until the rest of the world starts investing in the critical downstream linkages that take rare earth mine outputs and upgrade them into market-desired materials, such as NdFeB magnets, end-users outside of China will remain reliant on (and vulnerable to) China's monopoly into the foreseeable future – irrespective of how many new mines are brought online elsewhere.



# **OUR ADVANTAGE**

# Canada Rare Earth provides capabilities that are rare outside China and bridges the "disconnect"



Value Chain Dominated by China



### RARE EARTH MINERALS TO MARKET CHAIN

### **Concentrate Feedstock**

Mineral sands
Tailings
Traders and brokers

### **Canada Rare Earth Refineries**

Globally strategic sites
Full spectrum of critical elements (heavies and lights)
Custom design to meet market & customer specifications
Modular expansion

Strategic customers Long-term contracts 50-70% output



Spot market
Trading
Stockpiles



# Uniquely Positioned Platform

Canada Rare Earth is focusing business where our strengths and unique value proposition give us an advantage in the rare earth industry outside of China:

- Our strategy is built on our unique access to proven, in-production rare earth processing technologies and key individuals with long successful careers in developing and operating rare earth facilities
- We are leveraging our strengths to connect with the best sources of concentrates and suitable customers
- Generating sales & gross profits we are in business



# OUR STRATEGIC CAPABILITIES

Canada Rare Earth and its partners, have unparalleled experience and skills in the rare earth industry:

- Successful track record of designing, building and operating rare earth separation plants inside and outside of China
- Proven capability and technology for the separation of ALL critical rare earth products

The foundation for Canada Rare Earth to fulfill its vertical integration strategy includes:

- Establish network of full spectrum rare earth refineries for supply of Canada Rare Earth products to key international customers
- Identifying and securing optimal sources of rare earth concentrate
- Customer engagement and sales support



# SOURCING STRATEGY & BENEFITS

- Canada Rare Earth and its affiliates focus on monazite as a source of rare earths
  - Long standing proven source of rare earths
  - Developed, proven and in production technology for concentrating and separating the full range of critical elements
- Canada Rare Earth sources its rare earth minerals primarily from the tailings of other mining operations
  - Use of tailings as feedstock means mining is not required, reducing the environmental damage and risks to production
  - Processing of tailings often assists in cleaning up of previous mine sites and extraction of valuable minerals from material previously considered "waste"
  - The costs of processing tailings vs the costs of mine development deliver an operational cost reduction for Canada Rare Earth operations
- Typical sources include:
  - Heavy Mineral Sands operations where monazite is a component of the tailings
  - Tin mine tailings



# Business for Canada Rare Earth

	Now	Future
Buying and Selling Concentrate	Delivering to existing operating refineries in China	Expand shipment volumes to supply refineries in Asia, South East Asia, North America, & South America
Selling Rare Earth Products (oxides, metals, compounds, etc.)	Sourcing from Asian and Chinese refineries to supply ROW	Canada Rare Earth and affiliate refineries outside of China to expanded customer base in ROW
Developing Refineries Outside of China	Development of Canada Rare Earth South American rare earth refinery Permitting of Laos refinery and exercise option to buy control	Development of additional refineries in South East Asia, North America, & other strategic locations



# PROJECTS AND ALLIANCES

Mineral Resources/ Concentrate Sources	Concentrate Pretreatment (Hydrometallurgy)	Rare Earth Separation Facilities	Rare Earth Downstream Processing
• Africa	Hunan China	Ganzhou Zhanhai	China
<ul><li>South America</li><li>Australia</li></ul>		Hunan China	
<ul> <li>South East Asia</li> <li>India</li> <li>North America</li> </ul>	Laos	Laos	Laos
	Southeast Asia	Southeast Asia	Southeast Asia
	South America	South America	South America
	Middle East	Middle East	Middle East
	Prospective		In Place

#### **End Customers**





# South American Tailings Project

In December, the Company purchased 590 hectares of tailings produced from 25+ years of mining and leased 9,960-hectares for 26 years:

- The tailings contain recoverable quantities of rare earths, cassiterite, ilmenite, and zircon
- CREC may utilize existing permits and licenses necessary to process the tailings
- CREC has the right of first refusal to purchase the mining rights related to the 9,960 hectares
- Mixed concentrate will be initial the product with plans for separated products in the future
- Sales for a minimum of 48,000 mt of concentrate per year have been identified
- Initial Phase production output of 4,000 mt per month with ability to add further modules to increase production accordingly.

Project timeline			
December 2019	Commercial deal closed		
December 2020*	Process flow finalized Processing equipment purchased		
May 2020*	Processing equipment installed Commissioning started		
June 2020*	Full phase 1 production		
* Delayed due to COVID impact and travel restrictions			



# SOUTH AMERICAN REFINERY PROJECT

- Canada Rare Earth has initiated a project to build and operate a rare earth processing facility
  in South America in line with the Company's strategy to establish non-China based sources
  of refined production ready rare earth products including oxides and metals for customers
  who need to de-risk supply of critical rare earth materials especially Nd and Pr
- The refinery will process South American rare earth mineral concentrates through to saleable oxide and metals
  - Products will include the complete range of commercially traded rare earths including Nd, Pr and heavy elements
  - Planned production capacity of 3,000 mt of oxides or equivalent mix of oxides and metals per year.
  - The refinery will use available, existing proprietary processing technology
  - CREC to deploy rapid design and construction timeframe by leveraging existing designs that are proven and in production
- Study to select optimal location for a Canada Rare Earth South American refinery has commenced and my early 2021\* the Company intends on selecting a site and starting the permitting process (\*Delayed due to COVID impact and travel restrictions



### LAOS REFINERY

- Lao Xiangjiang Rare Earth Corporation was formed by Canada Rare Earth's partners to extend their rare earth refining capabilities outside of China to supply demand for high quality refined rare earth products
- Located in an industrial development area outside of Vientiane, the capital of Lao People's Democratic Republic
- Investment approved summer of 2011 by Lao Government
- Construction completed late 2012
- Current status operation startup pending final operating permit from Lao government

Canada Rare Earth has agreed to purchase 60+% of the shares of the Laos Refinery on

issuance of the operating permit







# LAOS REFINERY OVERVIEW

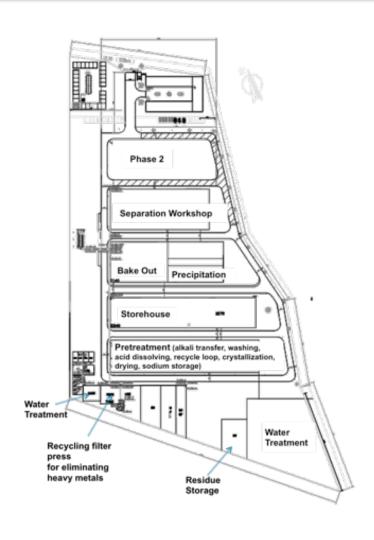
- Capability both heavy and light refined rare earth oxide products
- Quality levels up to 99.99% purity (higher purity possible with additional investment)
- Output capacity 3,000 metric tons per year
- Expansion capacity facility can be expanded to produce 6,000 mt annually
- Feedstock pre-treated (Th & U removed) concentrates or monazite
- Products:
  - neodymium oxide,
  - dysprosium oxide,
  - praseodymium oxide,
  - lanthanum oxide,
  - cerium oxide,
  - neodymium-praseodymium oxide,
  - terbium dioxide,
  - erbium oxide,
  - gadolinium oxide, and
  - holmium oxide.
  - additional custom products can be produced depending on customer specifications and requests





# LAOS REFINERY FACILITY

- Site covers over 70,000 square meters
- Factory floor area is roughly 28,000 square meters
- Factory staffing of 180 employees including 27 foreigners and 153 local workers
- Major operations and equipment:
  - acid dissolving tank,
  - extraction tanks,
  - settling tank,
  - baking kilns,
  - steam boilers and
  - waste water treatment facilities.
- Refinery land is owned through lease with local partner (normal practice in Laos)
- Electrical supply from Laos grid is in place with generator backup
- Water supply in place and 100% recycling of process water designed and built in
- Paved road access to within 500 meters of facility presently, plans for paving when facility in operation





# MANAGEMENT, BOARD AND ADVISORS

#### **Management and Board of Directors**

Tracy A. Moore CEO & Director Corporate finance in 20 countries

Peter Shearing COO & Director Broad international experience in electronics and high-tech manufacturing

Chris F. Goodman Leader of South Commodity trading and international business development

American Operations

& Director

Salil Dhaumya CFO Extensive experience in the resource sector

Gordon J. Fretwell Legal Counsel, Multiple clients and directorships in the exploration and

Corporate Secretary, & mining and resource industries

Director

Mark Peters Director International tax structuring and financial reporting

Bill Purcell Director Downstream oil industry

#### **Advisory Board**

Mike Fillipoff Large-scale project management

Bob Schafer Global exploration/mining experience

John Treleaven Domestic and foreign government relations, former Ambassador of Canada



# CAPITAL STRUCTURE

	Directors, Sr. Management, Advisors & Strategic Partners	Other	Basic and Fully Diluted
Shares	70,678,532 (35%)	131,366,000	202,044,532
Options	14,875,000	-	14,875,000
Warrants	0	-	0
Total	85,553,532 (39%)	131,366,000	216,9198,532
Trading Prices:	7.5¢ - 3¢ 52 Week high/low	V	
Market Capitalization Exercise of Options	\$13,100,000		
and Warrants	\$810,750		



### **Vancouver Office Contact Information**

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### Website

### www.canadarareearth.com

<b>Corporate Data</b>			
<u>Transfer Agent</u>	Listing TSX Venture Exchange TSX:LL	<u>Legal Counsel</u>	<u>Auditors</u>
Computershare		Gordon J. Fretwell	DeVisser Gray LLP