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# Rare Earth Production Commencing 2021



Investor Presentation

**AUGUST 2020**



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## REFERENCES:

1. ASX announcement dated 15 April 2020 titled “Substantial Increase in Resource Size and Grade at North-T Zone Nechalacho” (<https://www.asx.com.au/asxpdf/20200415/pdf/44gytlw5ckfbyr.pdf>); and  
ASX announcement dated 13 December 2019 titled “Vital Announces JORC 2012 Compliant Resources for the Nechalacho Rare Earth Deposit” (<https://www.asx.com.au/asxpdf/20191213/pdf/44ckgzdngkmzpj.pdf>)
2. ASX announcement dated 25 June 2019 titled “Vital to Transform Into Rare Earth Oxide Developer” (<https://www.asx.com.au/asxpdf/20190625/pdf/446361nxqnn9w8.pdf>)
3. ASX announcement dated 19 February 2020 titled “Vital Intersects Ultra-High Grade, Near-Surface REO at Nechalacho” (<https://www.asx.com.au/asxpdf/20200219/pdf/44f74511z68r0.pdf>)
4. ASX announcement dated 5 December 2019 titled “Vital Demonstrates Ability to Produce Rare Earth Concentrate with Grades Above 35% REO” (<https://www.asx.com.au/asxpdf/20191205/pdf/44c9nq180gpl7h.pdf>)

*This Investor Presentation has been authorised for release on ASX by the Board of Vital Metals Limited*

# VML is targeting to be the largest independent supplier of clean mixed rare earth feedstock outside of China

## Highlights

### Aspirational Targets

- Operations commencing 2021
- Maximum total construction cost to produce rare earth carbonate of A\$20M
- Aim for the production of a minimum of 5,000t contained REO by 2025

### World class REO Development Team – ex Lynas Corporation Ltd

- Managing Director: Geoff Atkins - ex Lynas Corporate Development
- Chief Operating Officer: Tony Hadley - ex Lynas and Northern Minerals Operation Manager

### 2 World Class Rare Earth projects

- Nechalacho (Canada): 95mt at 1.46% TREO
- Wigu Hill (Tanzania): 3.3mt at 2.6% TREO

### Simple Metallurgy

- 35%+ initial beneficiation via ore sorting
- 97% recovery into solution via hydrochloric acid with using industry standard process

### Supporting a non-China supply chain

- Nechalacho located in Canada
- Accepted into Canadian Government AGS scheme to promote Canadian Government assistance



Source: Adamas Intelligence's "Rare Earth Magnet Market Outlook to 2030", Wind Europe 27/5/20



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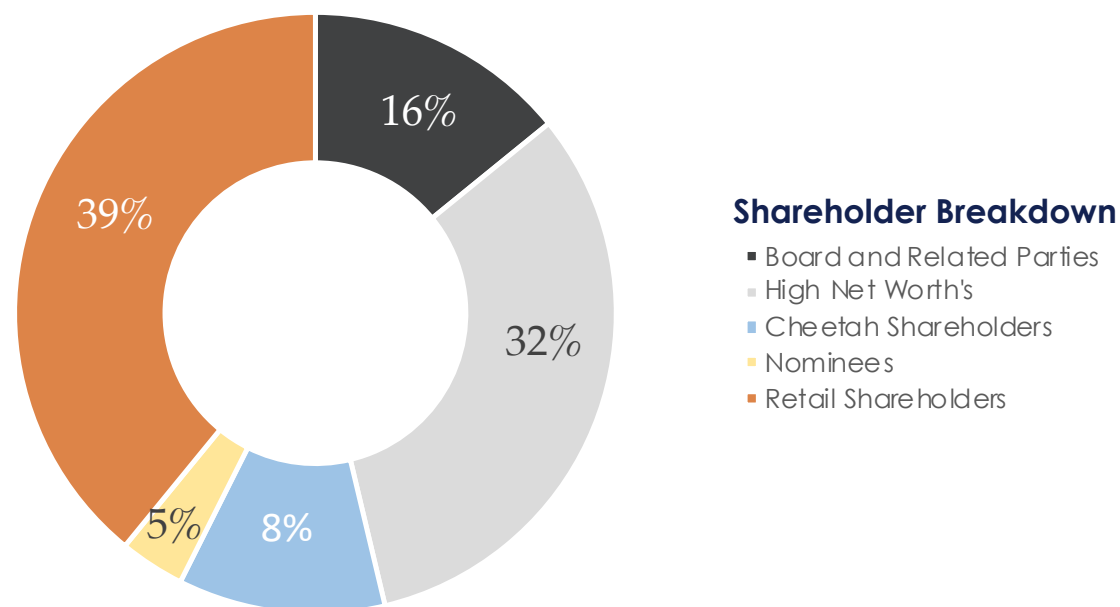
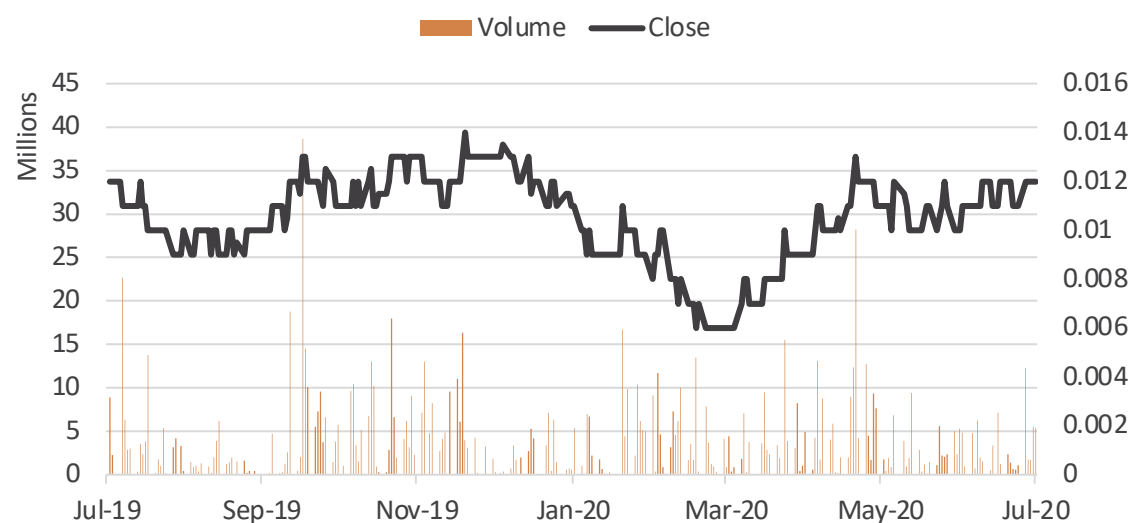
# VITAL METALS COMPANY OVERVIEW



# Corporate Overview

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## VML Share Price Performance



## CAPITAL STRUCTURE

ASX Code	VML
Shares on Issue	2,142m
Performance Shares	800m
Performance Rights and Options on Issue	529.7m
Share Price (as 31st July 2020)	\$0.012
Market Capitalisation	\$26m
Cash (30 June 2020)	\$1.8m

## Board and Management

Geoff Atkins	Managing Director
Evan Cranston	Chairman
Phil Coulson	Non-executive Director
James Henderson	Non-executive Director
Tony Hadley	Chief Operating Officer
Mathew Edler	Executive Vice President – Corporate Development
Darren Sutton	Process Technologist

# Vital's senior management are world experts in developing rare earth projects

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## Senior Management

### **GEOFF ATKINS**

*Managing Director*

25 years of project and corporate development experience including four (4) years as Corporate Planning Manager at Lynas Corporation where he oversaw the development of and implementation of the strategic planning process and the development of the Mt Weld Concentration Plant and Lynas Advance Materials Plant in Malaysia.

### **TONY HADLEY**

*Chief Operating Officer*

Over 25 years metallurgical process experience including General Manager, Mt Weld where he successfully designed and commissioned the world's first rare earth phosphate flotation concentrator and General Manager, Browns Range where he successfully designed and commissioned the world's first heavy rare earth process plant for xenotime feedstock.

### **MATTHEW EDLER**

*Executive VP Corporate Development*

Former General Manager for Lynas Corporation and was responsible for all in-country activities for the Kangankunde rare earth project – Malawi.

### **DARREN SUTTON**

*Process Technologist*

Former process engineer at Lynas Corporation and Hastings Technology Metals with responsibility for developing process flow sheets, plant commissioning and achieving customer acceptance of rare earth precipitates

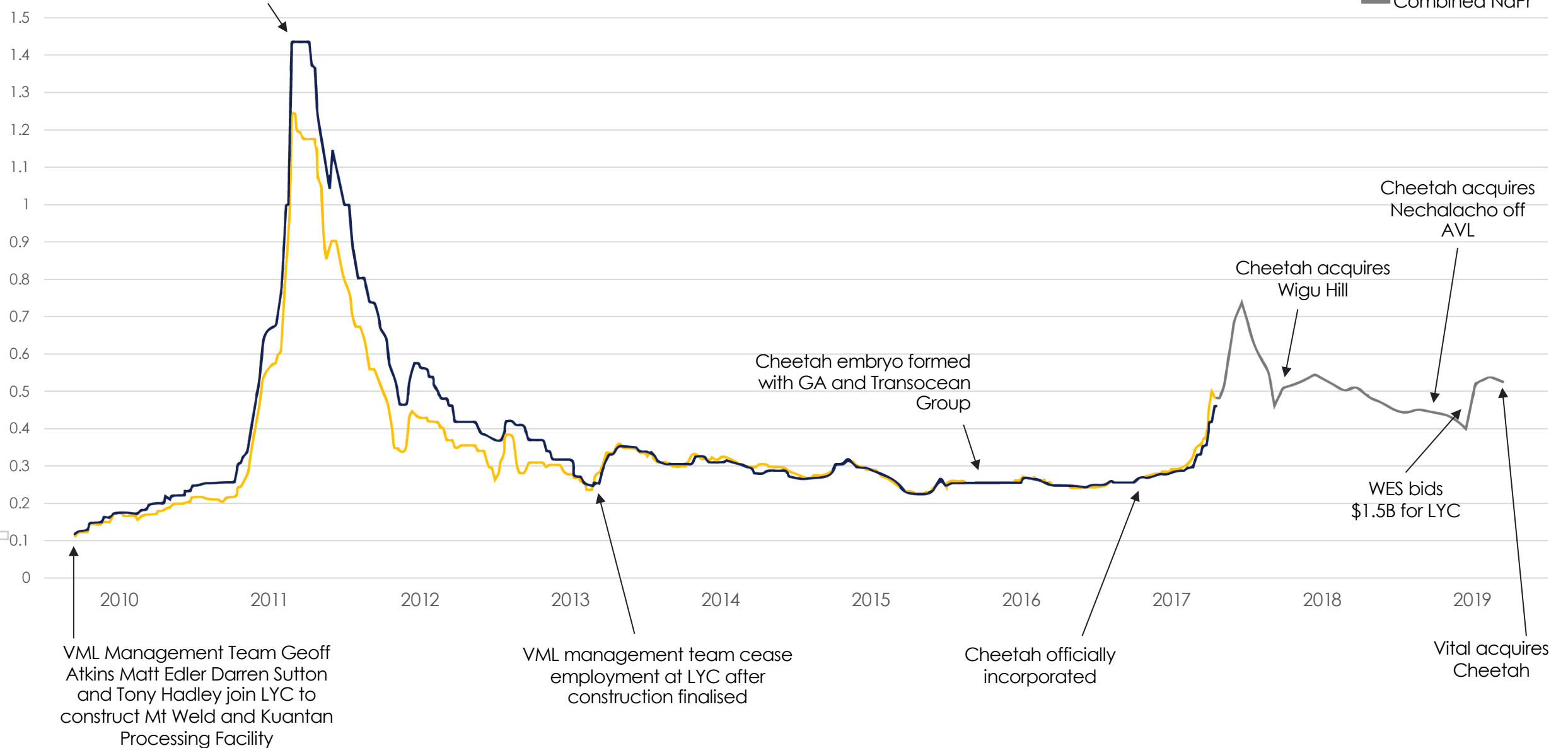
# Vital's 100% subsidiary Cheetah has evolved from a concept in 2015 to today

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**Price**  
CNY/Tonne  
(millions)

**Neodymium and Praseodymium Oxide Prices in China**  
Rare-Earth Permanent Magnets (REPMs)

— Neodymium  
— Praseodymium  
— Combined NdPr





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# VITAL METALS DEVELOPMENT STRATEGY



The traditional development model is to immediately develop a large-scale project, requiring considerable time and capital

## Traditional Project Development Model

### Time Taken to Develop Projects

- Financing, contracting, construction and commissioning 4+ years
- Projects are complex and require 2-3 years to achieve design capacity

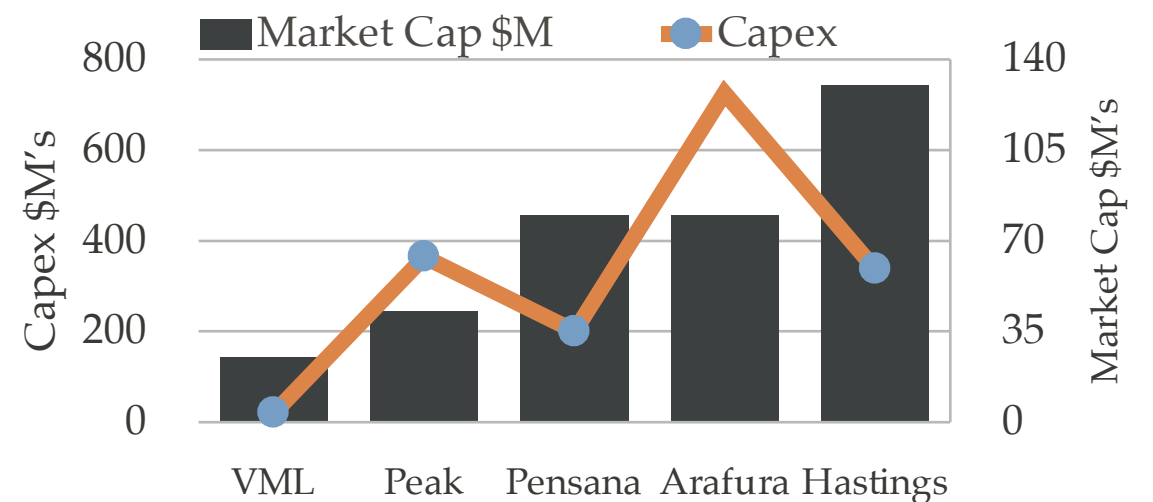
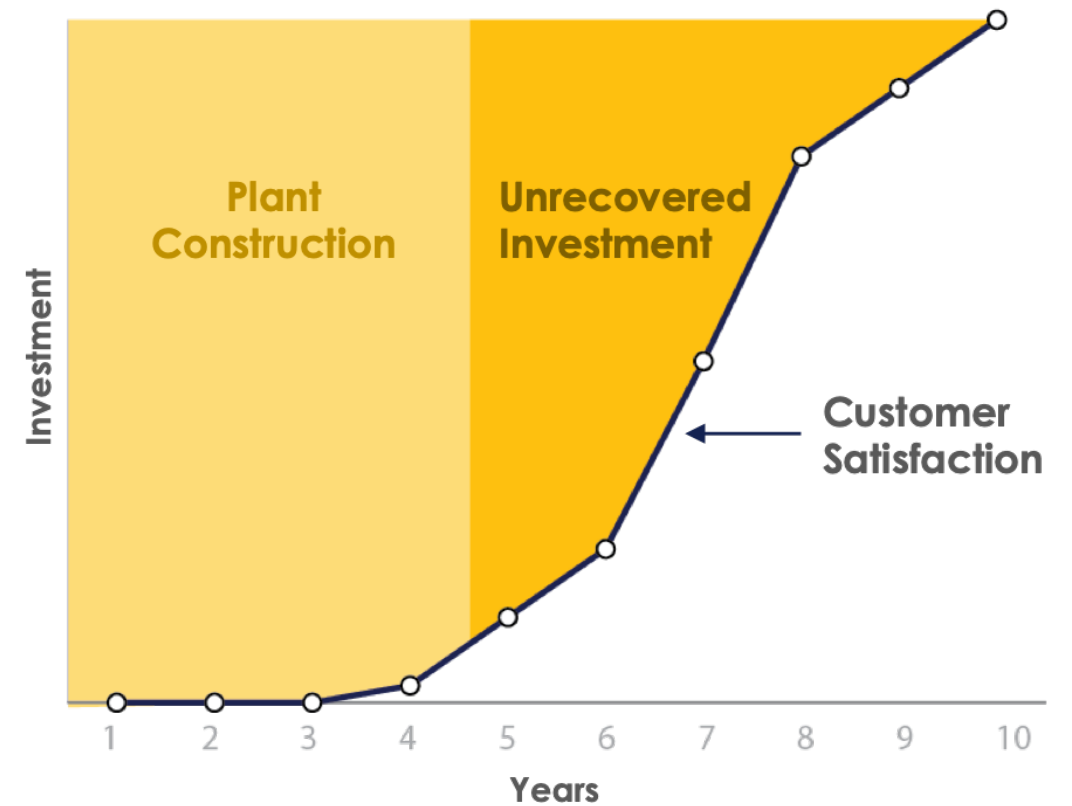
### CAPEX to Develop Project (ARU PEK ALK PM8)

- Average CAPEX of aspiring ASX developers is \$823M
- Average ASX Market capitalization is \$339M

### Customer Acceptance of Product

- Due to very high specification levels, If replacing existing supply, customers will slowly ramp up acceptance of product over 3-4 years

**Building large REO Projects are both extremely dilutive to shareholders who will not see a return for many years.**





Vital's strategy is to generate low cost near-term cashflow to fund the development of large-scale operations

## Vital Metals Aspirational Targets

### Stage 1: Near Term/Low Capex Production Nechalacho North T

- Commence production of Mixed RE Carbonate within 18 months
- Maximum total construction cost for beneficiation and rare earth extraction plants of AUD\$20M

### Stage 2: Long Term/Large Scale Operation Nechalacho Tardiff

- Fund expansion through sale of Mixed RE Carbonate from North T
- Aim for the production of 5,000t Contained REO per year by 2025, with the potential for further expansion

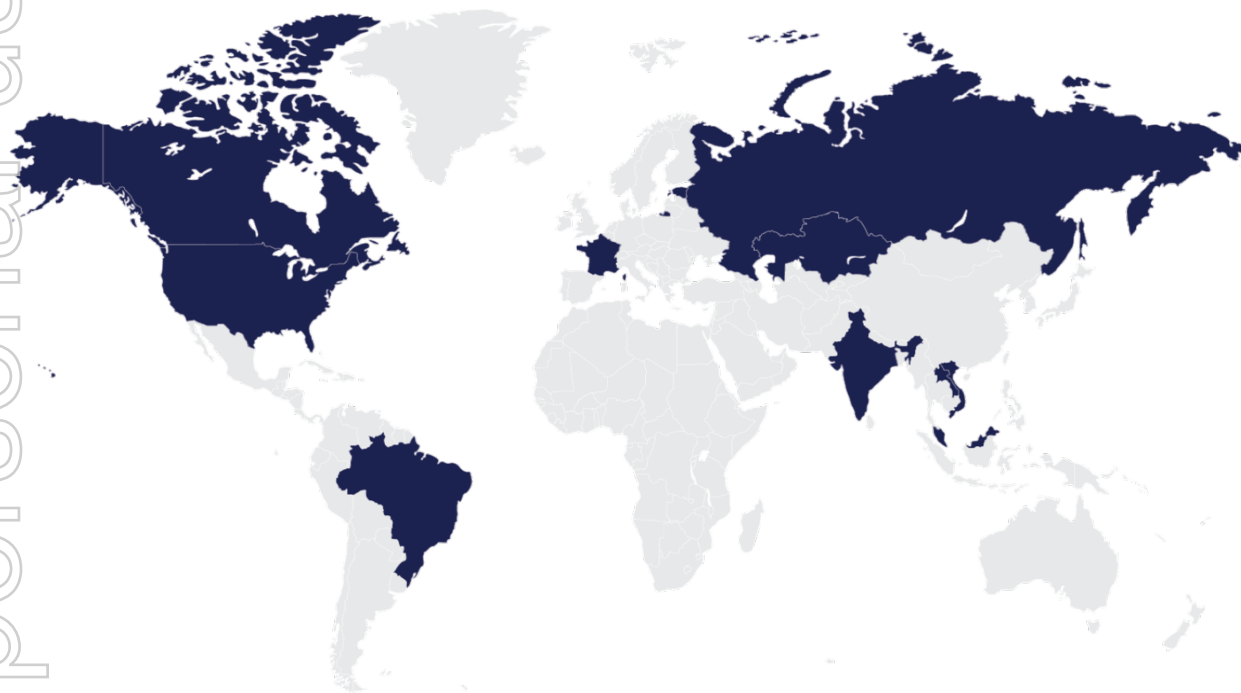
### Stage 3: Expansion Capability Through Additional Projects - Wigu Hill





# With significant global rare earth separation capacity, Vital will focus on producing a Mixed R.E. Carbonate product

## Global Rare Earth Separation Capacity



COUNTRY	ESTIMATED TREO T/YR	ESTIMATED CAPACITY UTILISATION
China	300,000	40%
Malaysia	20,000	100%
France	9,000	25%
Vietnam	7,000	50%
Russia	4,000	60%
Kazakhstan	3,500	0%
Estonia	3,000	33
Laos	3,000	0%
India	2,500	0%
Brazil	2,000	0%

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## Implementation Stage 1: Near Term/Low Capex Production

Nechalacho North T Project

Total Target Capital Cost: Less than \$20M

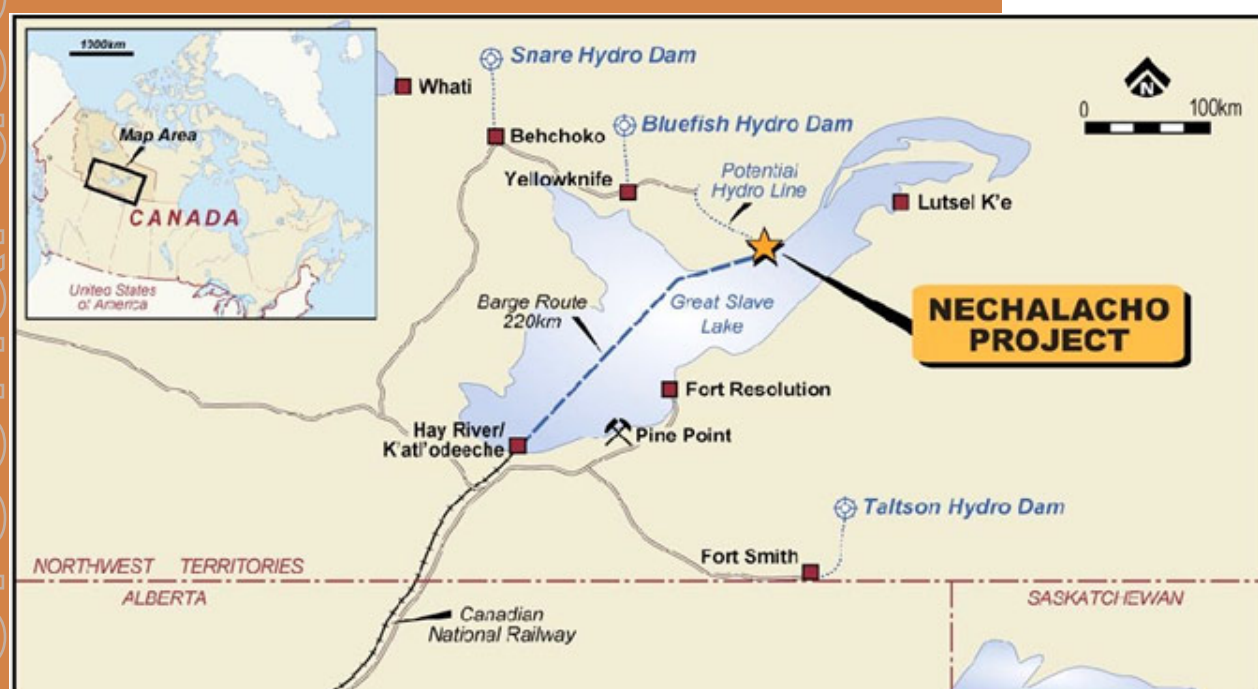
Production scheduled to commence mid 2021

Fund expansion from the sale of Mixed RE Carbonate



# The Nechalacho project is a world class rare earth project located in Northwest Territories, Canada

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## Large World Class REO Resource

- 94.7MT at 1.46% REO (measured, indicated and inferred)

## Tier 1 Mining Jurisdiction

## Excellent infrastructure

- Located 100km from Yellowknife
- 40 person camp with air strip
- Barge access in summer Ice Road winter

## Previous Owners spent C\$100m+

- Targeting heavy rare earth basal zone
- Completed DFS 2013 - \$1.6B CAPEX
- Upper Zone acquired for C\$5m in 2018

## Fully permitted for large scale operation

## Vital to target LREO Upper Zone

- Potential for lowest quartile CAPEX and OPEX



# The project has world-class existing infrastructure

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Access to Canadian National Railway at Hay River



Drill rig being de-mobilised on the Nechalacho Ice Road



40 Person Camp on Thor Lake



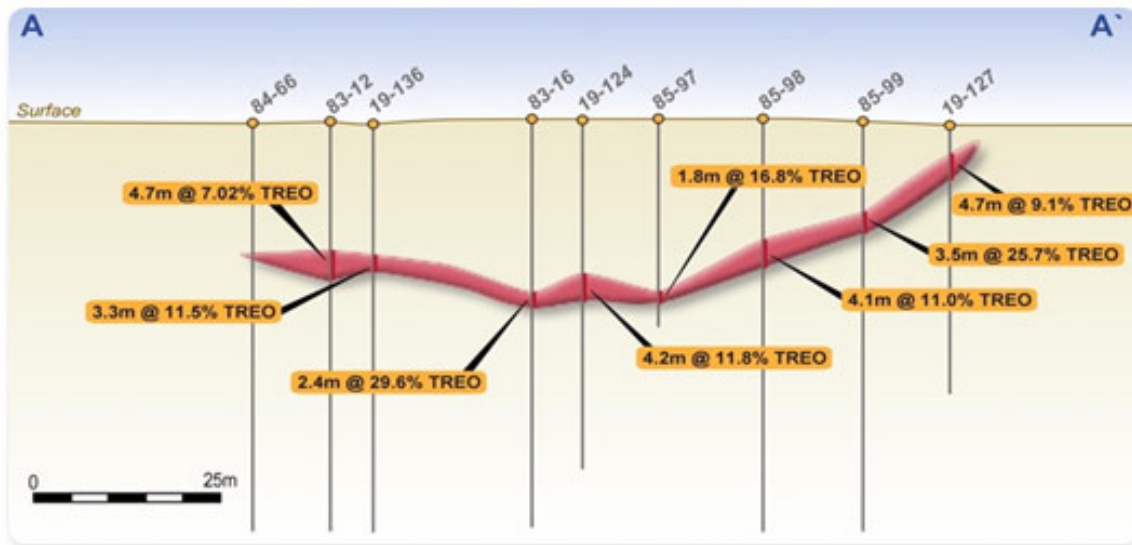
Drill rig being mobilised via barge



# The North T Zone is one of the highest grade rare earth deposits in the world

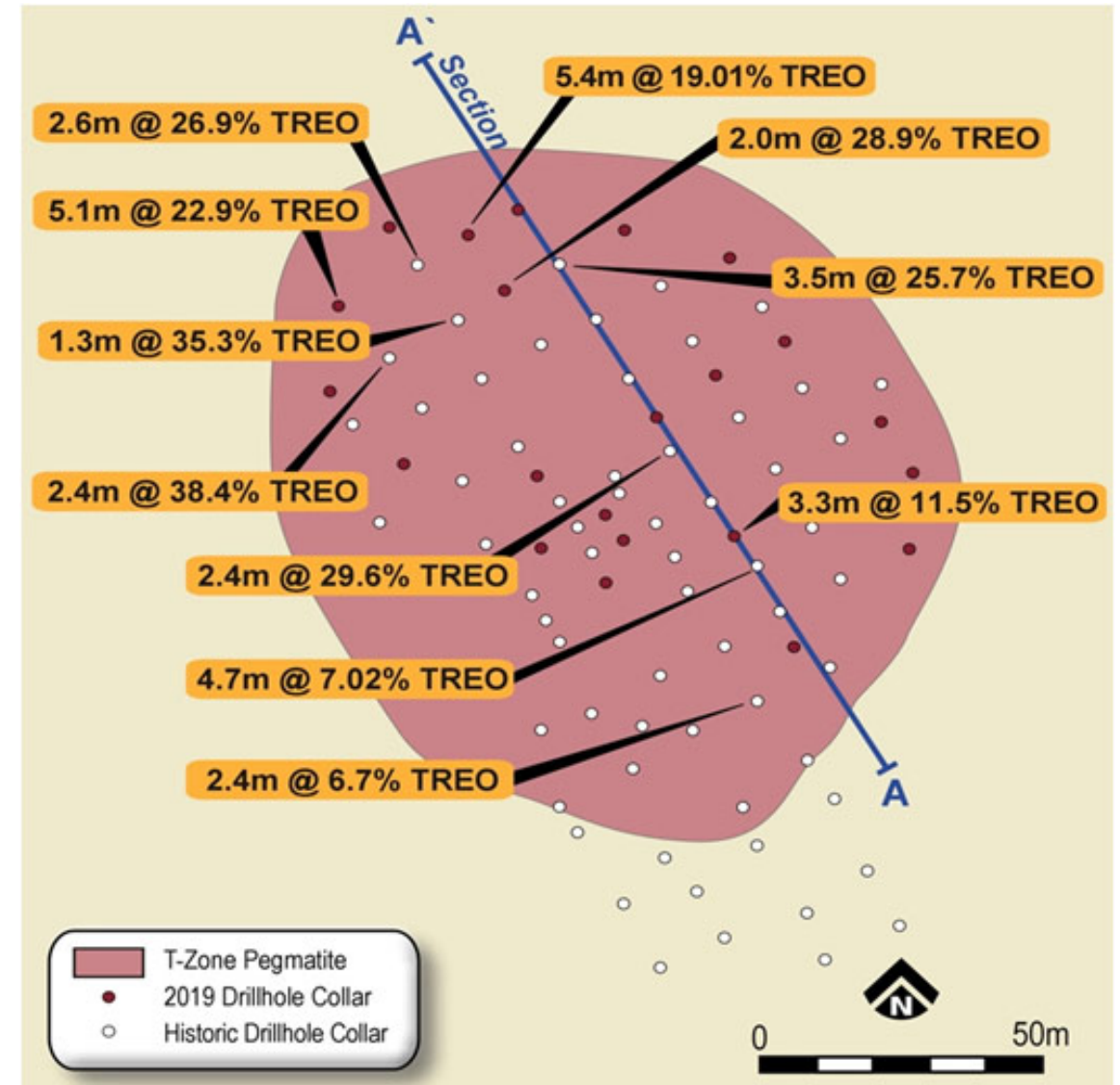
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## North T Resource



Resource Type	Kt	LREO (%)	Pr <sub>6</sub> O <sub>11</sub> (%)	Nd <sub>2</sub> O <sub>3</sub> (%)
Measured	68	9.6%	0.5%	1.8%
Indicated	33	7.8%	0.4%	1.5%
Inferred	4	5.8%	0.3%	1.1%
<b>Total</b>	<b>105</b>	<b>8.9%</b>	<b>0.5%</b>	<b>1.6%</b>

Light Rare Earth Mineral Resources of the North-T Zone Bastnaesite Sub-zone Nechalacho. Mineral Resource Estimation prepared in accordance with JORC 2012 under the supervision of Brendan Shand Member of the AusIMM as the Competent Person. The cut-off grade for this resource estimate is preliminary, at pre-scoping study level, as no detailed market, metallurgical or engineering studies have been performed.



# The project is amenable to simple, low cost processing via ore sorting and leaching

## Process Testwork

### Ore Sorting via X-Ray Transmission (single pass)

- 36% REO concentrate produced from 10.5% REO
- Grades up to 41% REO achieved
- REO recoveries up to 87% achieved

### Gravity Concentration on Fines

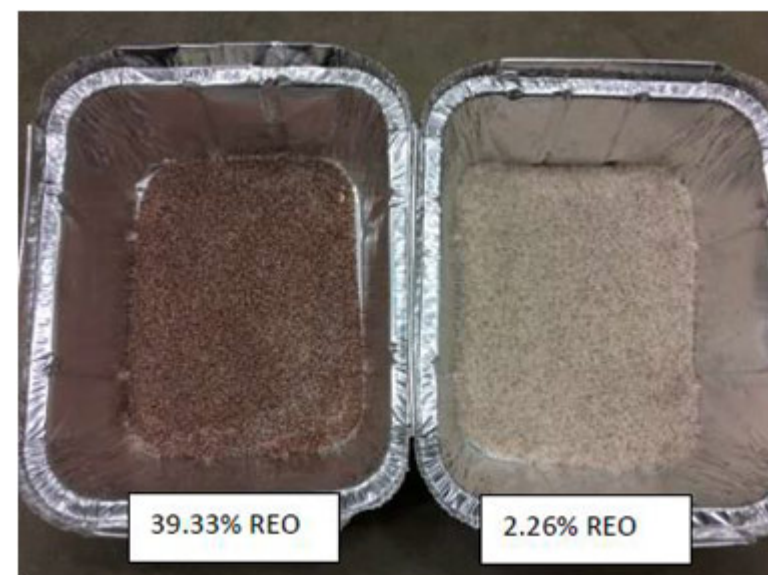
- 40% REO concentrate via shaking tables at 80% recovery

### Leaching of Concentrate

- 97% recoveries into solution via sulphuric acid
- 93% recoveries into solution via hydrochloric acid



Concentrate sample via sorting



Concentrate sample via gravity



# A detailed engineering report has estimated installed capital cost of the ore sorter to be \$3.7M



- Detailed engineering for the ore sorting operation is complete
- Total installed capital cost AUD\$3.7M
- Substructure to be installed on site during the Q3 2020
- Operations scheduled to commence Mid 2021

ITEM	DESCRIPTION	AUD\$ 000
1	Ore Sorter	1,395
2	Materials Handling Equipment	863
3	Generator and Air Compressor Package	590
4	Installation	215
5	Commissioning	107
6	Mobile Equipment	215
	<b>Subtotal</b>	<b>3,385</b>
	Contingency (10%)	338
	<b>Total</b>	<b>3,723</b>

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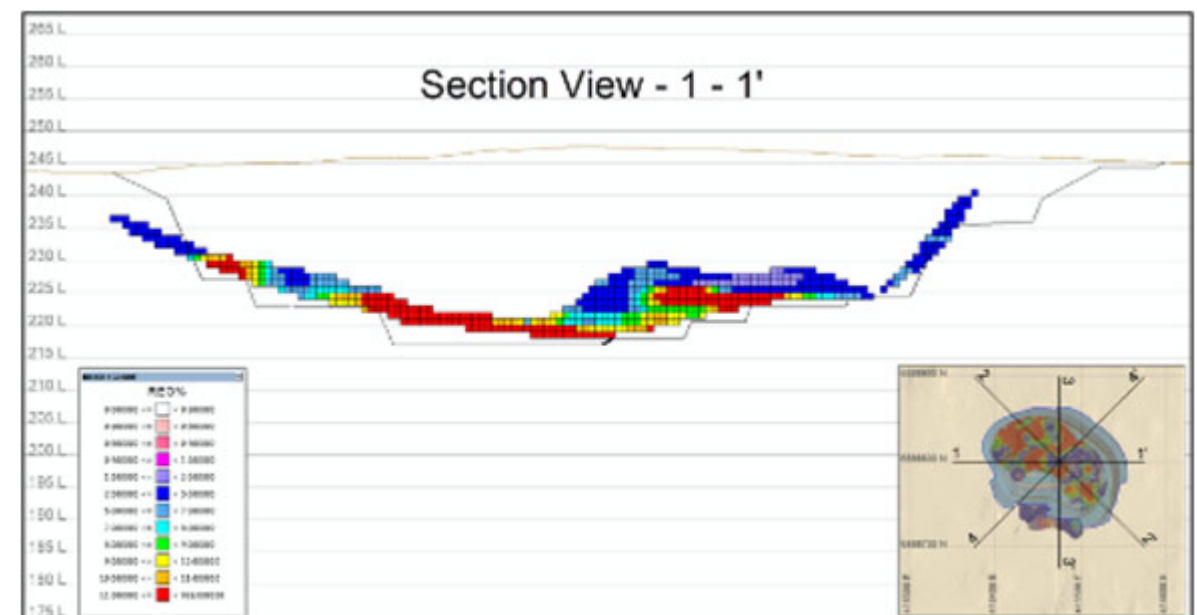
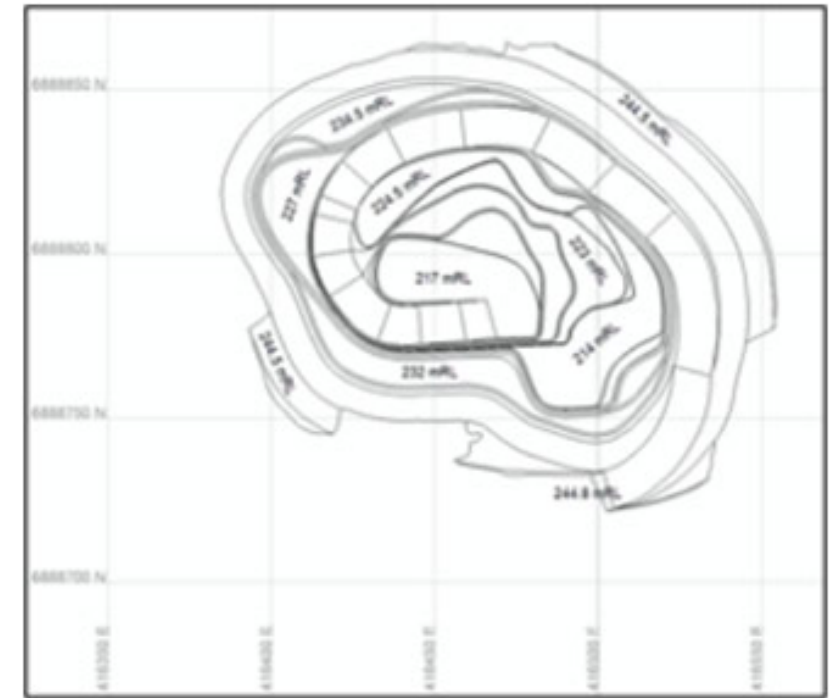
# The project is fully permitted for a 600kt mining and ore sorting operation

## Pit Design

- A pit design has been completed to comply with received Land Use Permit and Water License
- The pit design is sufficient to enable the further development of the mining and crushing services contract
- Mining Fleet is scheduled to mobilise to site Q1 2021

ITEM	UNIT	RESOURCE INVENTORY
Ore	T   REO %	74,124   10.8
Waste Overburden	T	84,946
Waste Pegmatite	T	420,300
Waste Total	T	505,245
All Materials	T	579,370
Stripping Ratio	waste/ore	6.8
REO	T	8,028

Note: Resource Inventory estimate in the Table is a subset of the Total Mineral Resource Estimates included in the Company's announcement dated 15 April 2020. 74,124 t @ 10.8% REO (56,531t @ 10.7% REO Measured, 16,397t @ 11.7% REO Indicated, 1,196t @ 5.4% Inferred)



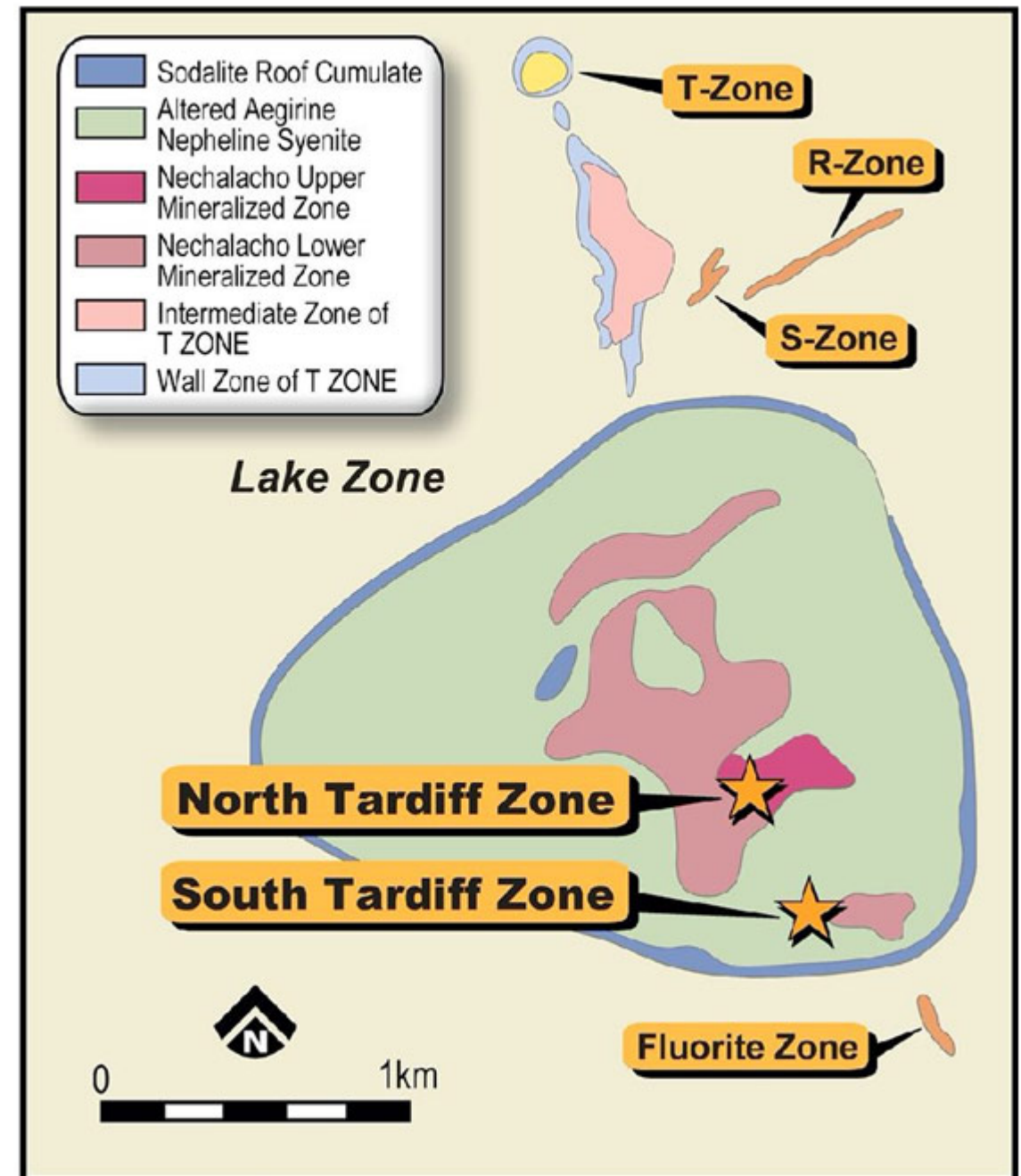


The development of the North T project is on track for operations to commence in 2021 with site preparation works underway

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## Next Steps

- Site preparation works to commence in Q3 2020 including site clearing, camp upgrade and installation of the ore sorter sub-structure
- Finalisation of a contract for the construction and operation of a Rare Earth Extraction Facility to produce Mixed Rare Earth Carbonate product for sale - Q3 2020
- Confirm Off-take agreements - Q3 2020
- Sampling program to undertaken in South T, R Zone and S Zone to evaluate potential of T-Zone expansion
- Undertake infill drilling at Tardiff Zone



## Implementation Stage 2 Long Term/Large Scale Production

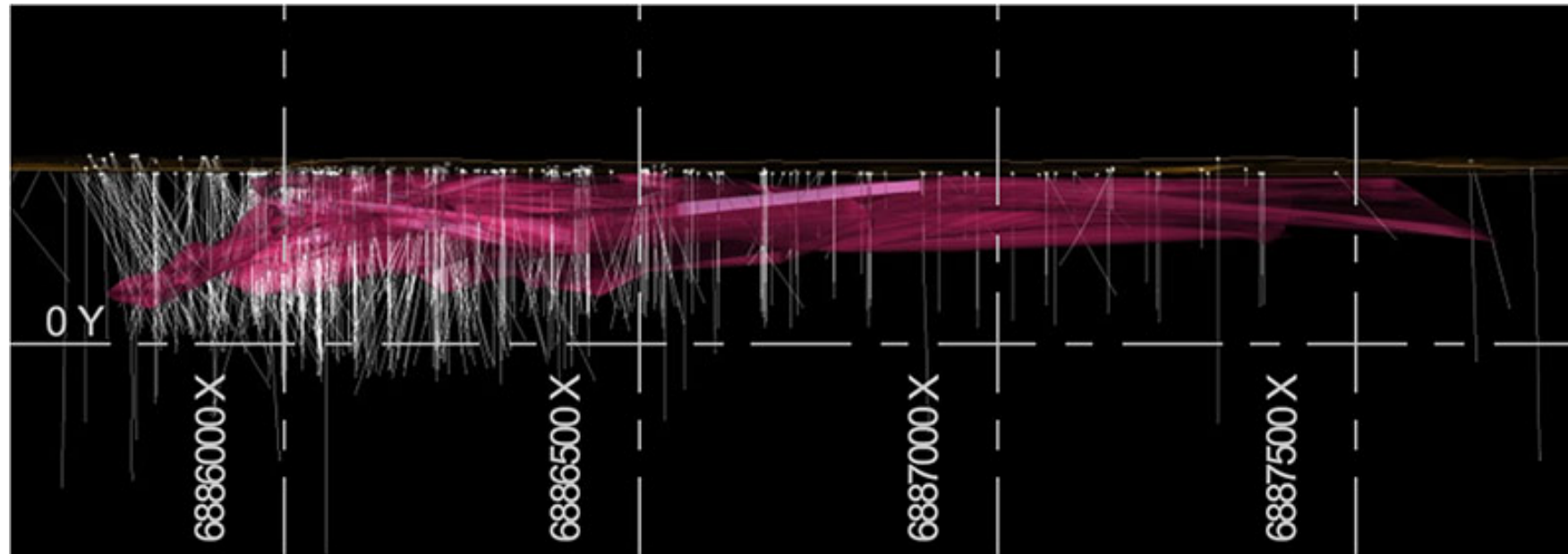
Nechalacho - Tardiff Project

Aim for Production of 5,000t REO/yr for 20 years

Operations targeted to commence 2024



# Sales revenue from North T will be used to fund the development of a targeted 5,000t REO/yr operation at the Tardiff Zone



- The Upper Zone resource will be the focus of a large-scale, long-term operation (95Mt @ 1.46% TREO)
- This zone contains over 1Mt of contained rare earths.
- The initial target will be the high grade Tardiff Zone
- A target operation is 5,000t REO/yr from 2025

Resource Type	Mt	TREO (%)	HREO/TREO	%NdPr/TREO
Measured	0.287	2.729%	7.7%	24.1%
Indicated	1.611	2.429%	7.2%	24.1%
Inferred	1.297	2.237%	6.8%	24.2%
<b>Total</b>	<b>3.196</b>	<b>2.378%</b>	<b>7.1%</b>	<b>24.2%</b>

Rare Earth Resources of the Upper Zone, Lake Zone Deposit, Nechalacho. Mineral Resource Estimation prepared in accordance with JORC 2012 under the supervision of Dr. William Mercer, registered Professional Geoscientist (P. Geo.) in the Northwest Territories and Ontario, Canada, as the Competent Person. The preferred cutoff grade for this resource estimate is preliminary, at pre-scoping study level, as no detailed market, metallurgical or engineering studies have been performed. Only resource blocks located above 150 m elevation are reported.

Tardiff Zones high-grade near-surface subset of the Rare Earth Resources of the Upper Zone, Nechalacho deposit. Mineral Resource Estimation prepared in accordance with JORC 2012 under the supervision of Dr. William Mercer, registered Professional Geoscientist (P. Geo.) in the Northwest Territories and Ontario, Canada, as the Competent Person. The cutoff grade for this resource estimate is preliminary, at pre-scoping study level, as no detailed market, metallurgical or engineering studies have been performed.

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With mineralogy similar to the North T Zone, development of the Tardiff Zone will be fast-tracked utilizing existing plant

## Tardiff Zone

**Development of the Tardiff Zone will be leveraged off the North T project**

- The Tardiff Zone contains red bastnaesite crystals similar to the North T deposit (refer image)
- As with North T, ore sorting will be targeted for initial beneficiation
- With rare earths contained in the same minerals as the North T deposit, the Tardiff Zone will be a scaled up version of the North T project

**Development timelines to be fast tracked**

- Utilizing operational infrastructure will enable the fast tracking of process test work
- Construction of an expanded operation will be funded through North T sales





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## Implementation Stage 3 Wigu Hill

# Wigu Hill Project (90%) is targeted as VML's second rare earth project to enter production

## Excellent infrastructure

- Rail and Power within 10 km of project

## Previous Owners spent US\$10m+

- Acquired for US\$1m 2018

## Potential to be a large world class resource

- Current high grade NI43-101 resource of 3.3Mt at 2.6% REO

## Mineralise widespread over entire hill with only 2 out of 10 known target drilled

## Barrack and Tanzania Gov recently resolved mining issues

## Vital to target Wigu Hill – as second development project





# The initial focus for the Wigu Hill Project will be the Twiga deposit

Wigu Hill contains a historical NI43-101 Resource of 3.3M @ 2.6%REO

ZONE	MT	TREO (%)	LA2O3 %	CeO2 %	PR6O11 (%)	ND2O3 (%)
Twiga NE	1.6	2.6%	0.98%	1.26%	0.1%	0.23%
Twiga SW	0.5	3.6%	1.33%	1.71%	0.13%	0.3%
Tembo NW	0.9	2.2%	0.78%	1.09%	0.09%	0.23%
Tembo SE	0.2	2.2%	0.69%	1.1%	0.1%	0.27%
Total Inferred Resource	3.3	2.6%	0.96%	1.27%	0.1%	0.24%

1. The effective date for this Inferred Mineral Resource Statement is 25 August 2011 and reported on SEDAR (contained in a Canadian National Instrument NI 43-101 Technical Report by AMEC Earth and Environmental UK Ltd.).
2. A selective mining unit (SMU) size of 3m by 3m by 3m was assumed when creating the block model.
3. Reported grades are based on consideration of the grades of mineralised material and weakly to non-mineralised wallrock material estimated to fall within each SMU
4. The reported Mineral Resource is based on a grade cut-off of 1.0% LREO5 (sum of estimated grades of La2O3, CeO2, Pr6O11, Nd2O3 and Sm2O3).
5. The Mineral Resources for the Twiga and Tembo deposits have been constrained by an optimised pit shell defined by the following assumptions, slope angles of 50o; a mining dilution of 0% (already incorporated in the SMUs); a mining cost of USD2.85/t; process operating costs of USD12.0/t; G&A costs of USD3.0/t of resource, with a 90% recovery of REOs to a 45% LREO5 bastnaesite concentrate; and a concentrate price of USD10/kg

Similar to Nechalacho's T-Zone, the Twiga deposit contains large, discrete bastnaesite crystals enabling simple processing



#### Excellent Infrastructure

- Located close to Tazara railway, power and water

#### Bastnasite mineralisation

- Amenable to beneficiation via ore sorting
- Ability to leverage off Nechalacho



# Conclusion - Vital on track to be the world's next rare earth producer

## World Class Rare Earth Development Team – ex Lynas Corporation Ltd

- Lead by Vital Metals MD Geoff Atkins

## 2 World Class Projects

- Nechalacho REO Project (Canada) 95mt at 1.46% TREO1
- Wigu Hill (Tanzania) 3.3mt at 2.6% TREO2

## Near Term/Low Cost production

- Nechalacho's North T project is on track to commence production in 2021

## Expansion Funded through Cashflow

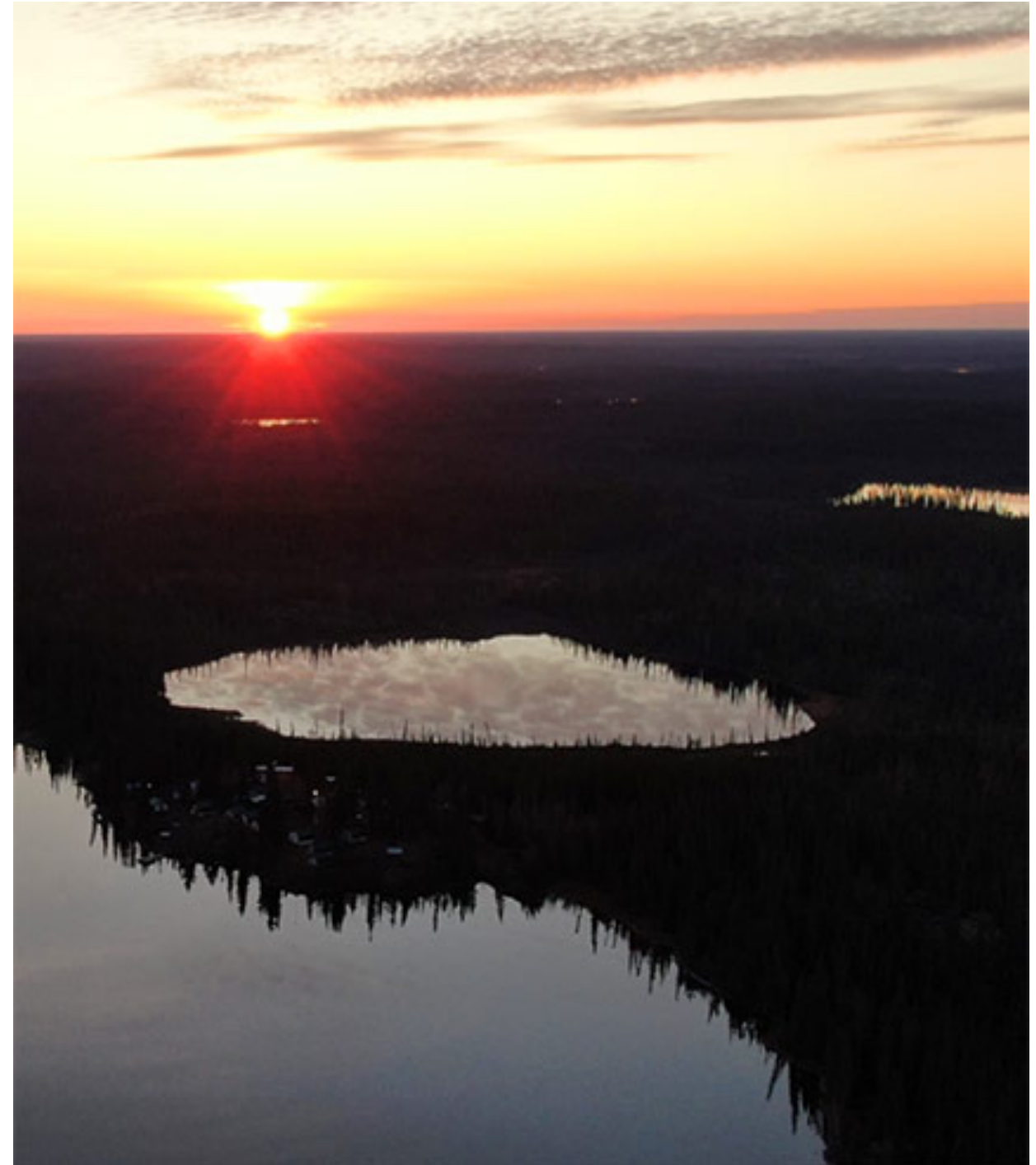
- Revenue from the North T project will be used to fund both an increase in production volumes from Nechalacho but also the development of new project

## Long Term/Large Scale production

- Nechalacho's Tardiff Zone targeted to enter production in 2024

## Flexibility and Scaleability to Meet Market Demand

- Wigu Hill project to provide additional ability to increase scale of production and the flexibility to react quickly to increased market demand





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# APPENDIX

# RARE EARTH MARKET



The establishment of rare earth supply chains outside of China has been recognised to be of strategic importance

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## Canada and U.S. Finalize Joint Action Plan on Critical Minerals Collaboration

January 9<sup>th</sup> 2020  
Ottawa, Canada

Canada and the United States share a mutual interest in improving critical mineral security and ensuring the future competitiveness of Canadian and U.S. minerals industries. Collaboration in this area could attract investment to Canadian exploration and mining projects, as well as spur job creation and economic growth in various downstream industries.

Today, Canada and the U.S. announced they have finalized the Canada–U.S. Joint Action Plan on Critical Minerals Collaboration, advancing our mutual interest in securing supply chains for the critical minerals needed for important manufacturing sectors, including communication technology, aerospace and defence, and clean technology.

This announcement delivers on the June 2019 commitment by the Prime

Minister of Canada and the President of the United States.

The Action Plan will guide cooperation in areas such as industry engagement; efforts to secure critical minerals supply chains for strategic industries and defence; improving information sharing on mineral resources and potential; and cooperation in multilateral fora and with other countries. This Action Plan will promote joint initiatives, including research and development cooperation, supply chain modelling and increased support for industry.

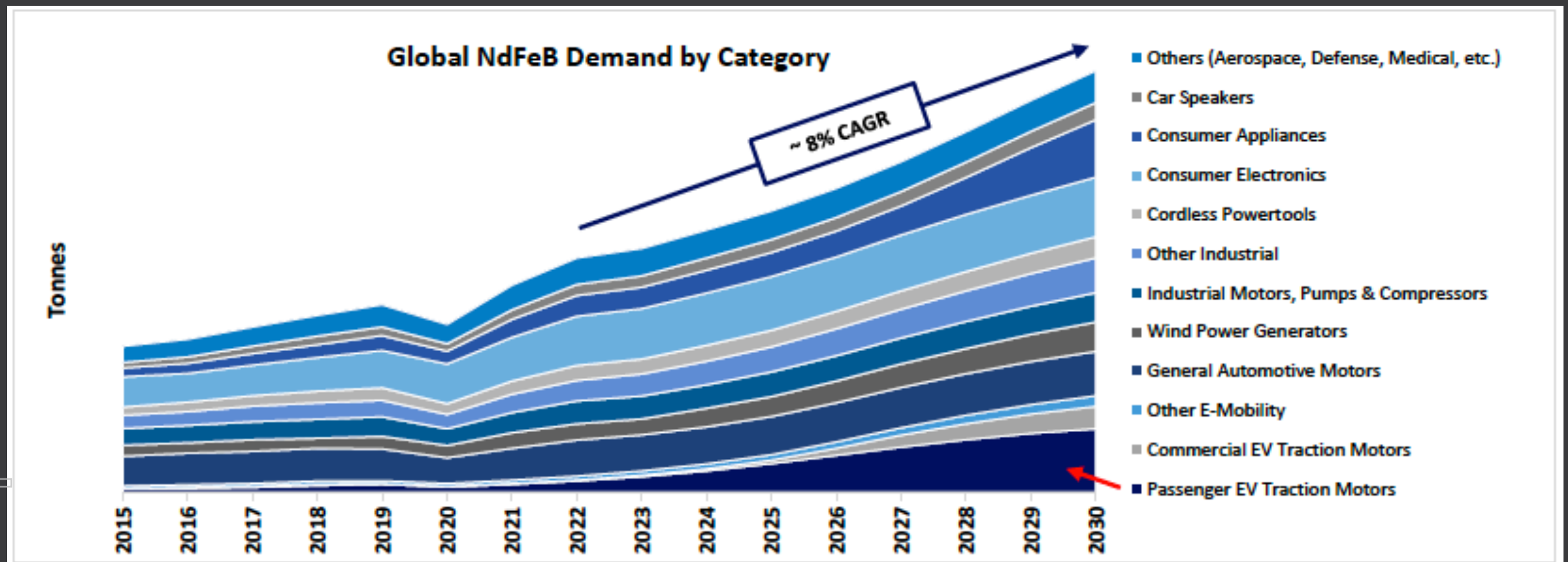
Experts from both countries will convene in the coming weeks to advance joint initiatives to address shared mineral security concerns — helping ensure the continued economic growth and national security of both Canada and the U.S.



# Post COVID stimulus and consumer spending set to see strong demand from 2021 and 2022

## Rare Earth Market Report

### Forecast NdFeB Demand



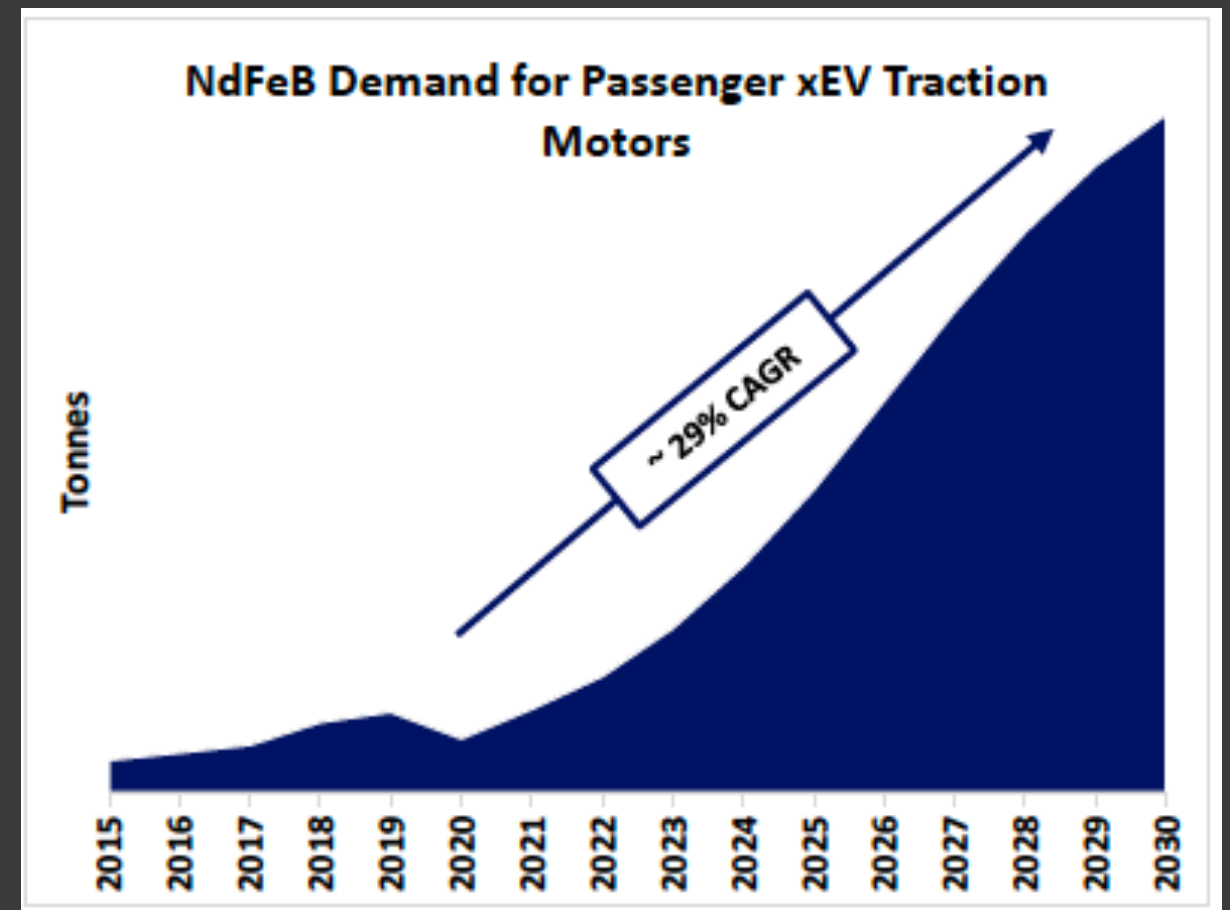
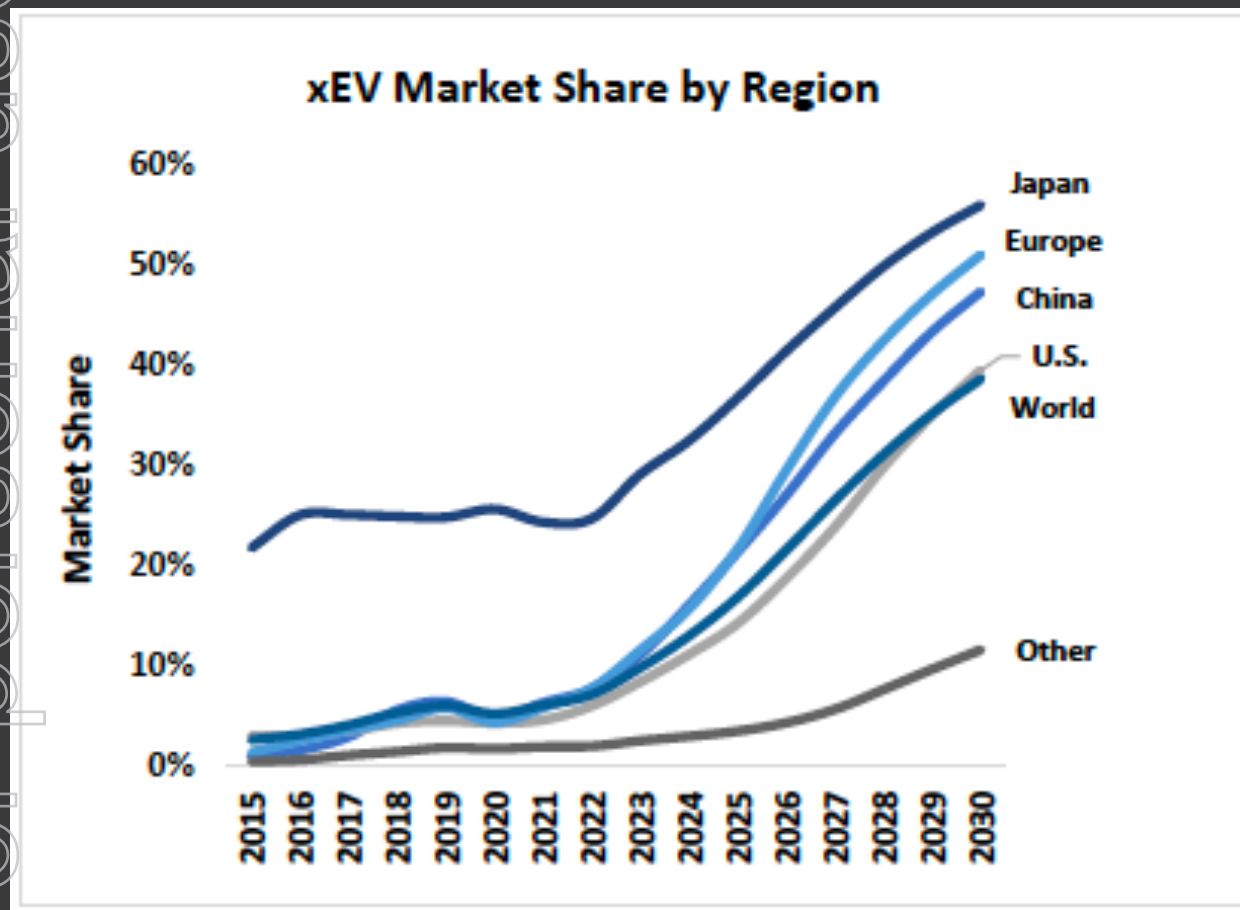
Source: Adamas Intelligence's "Rare Earth Magnet Market Outlook to 2030"



# The growth of EVs will result in increased demand for Rare Earth magnets forecast at 29% CAGR

## Rare Earth Market Report

### Demand Growth for Electric Vehicles



Source: Adamas Intelligence's "Rare Earth Magnet Market Outlook to 2030"



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