

FOCUSED ON THE HIGH VALUE SEGMENT OF THE RARE EARTH SUPPLY CHAIN

July 2020

+99.9% Neodymium (Nd) oxide



HXG

HEXAGON 

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Investment Snapshot

ASX listed Hexagon Energy Materials Ltd (HXG)

Rare Earths business

- *Focused* on high-**growth**, **strategic ‘energy materials’** – rare earth elements (REE)
- *Objective* is to develop a downstream REE refining business producing high-purity REE oxides (REOs) – addressing the extreme REE supply chain concentration risk
- *State of the art technology* such as RapidSX™ for REE separation; a unique accelerated technology which offers lower CapEx costs & faster REE separation – over which HXG holds an Option to acquire equity holding
- In a **‘commercialisation’ and feasibility stage**

Supporting Assets

- Cash of A\$1.2 million, no debt and total issued capital of 292 million shares (30 June 2020)
- High quality graphite resources and downstream graphite processing IP
- Australian high-grade-gold, nickel-copper and graphite exploration projects

Corporate Overview

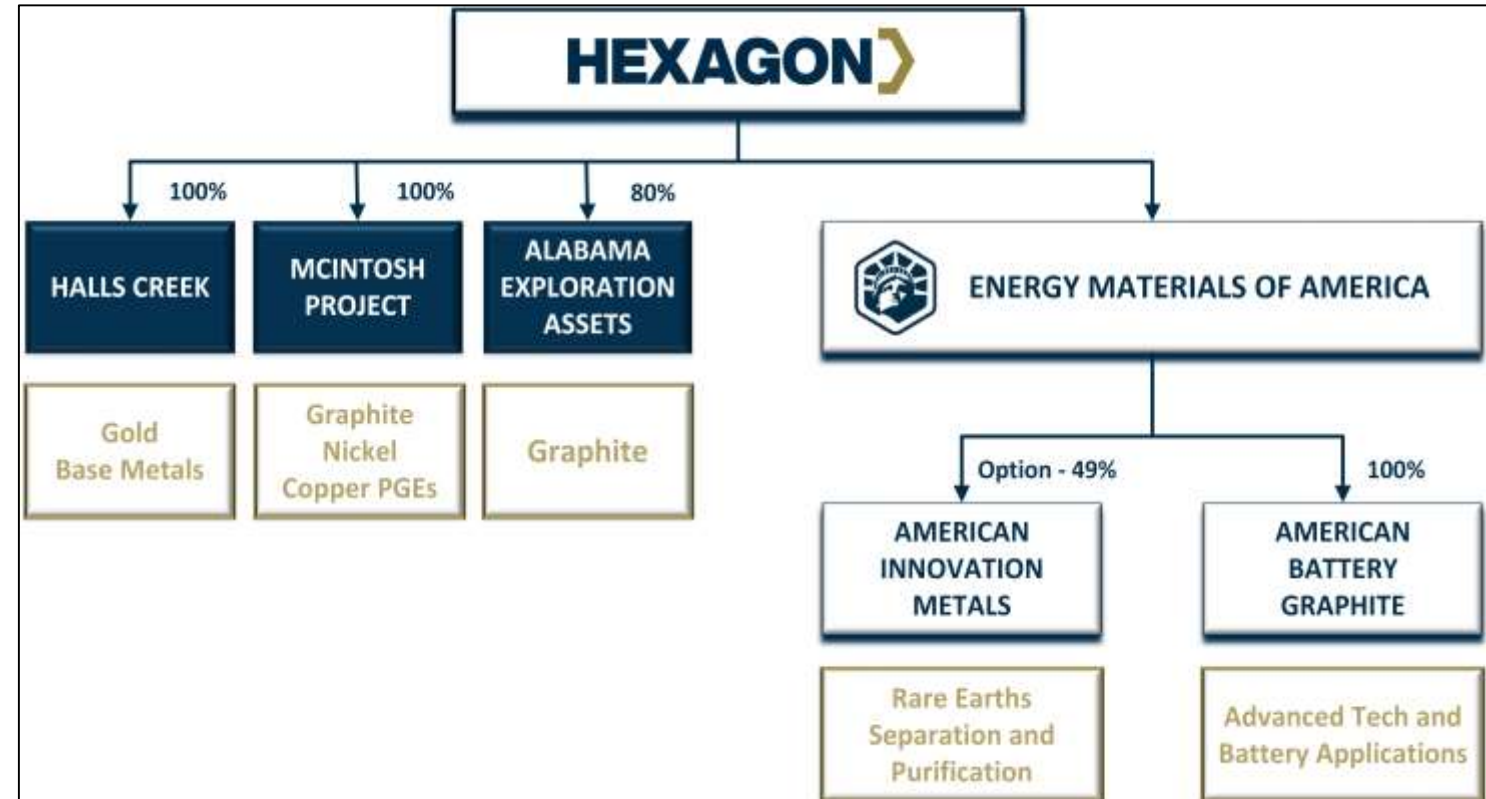


Hexagon Energy Materials Ltd

ASX Code	HXG
Shares on Issue	292.4M
Options/Rights	25M
Share Price (3/7/20)	A\$0.055
Market Capitalisation	A\$16M
90 Day - Avg. Trades	0.23M
No. of shareholders	~1,700
Debt	nil
Cash (31/5/20)	A\$1.2M

Share Register

Tribeca Natural Resources Fund	12%
Top 40 shareholders hold	60%
Board & Management	3%



Hexagon is an Australian listed junior company focused on downstream processing of specialty materials supporting high-growth sectors of renewable energy and e-mobility

An Experienced Team



Charles Whitfield
Chairman

Formerly: Executive Director at lithium producer Galaxy Resources Ltd. Investment Banking – Citigroup & Deutsche Banks.

Mike Rosenstreich
Managing Director

Formerly: Founding MD base / precious metals producer, Bass Metals. Banking – Rothschild. Mining and exploration, Homestake Gold & Dominion Mining.



Lianne Grove
Commercial/ CFO

Extensive experience in project development. Formerly: Commercial management and financial control in Oil & Gas projects at AWE Ltd and Sea Trucks Group and mining experience at Rio Tinto.

Garry Plowright
Non-Executive Director

Extensive experience in the resource sector, having a background in mining law and administration as well as regulatory process and mine development.



Gavin Beer
Strategic Advisor

A metallurgist with more **than 30 years'** experience in technical and operational roles and has spent the past 13 years exclusively working within the rare earth and energy materials sector.

Downstream REEs Demand



Electric Vehicles
(2kg REPM/EV)



Renewable Energy
(3,000kg REPM /
5 MW turbine)



Electronics
(1-2g / device – currently 3
billion devices)



Catalysts
(Mainly Ce & La - linked
to ICE fuels)



Defence & Aerospace
(Topical, c.400-900kg / jet-
fighter)

- Critical, non-substitutable inputs to high-tech, green-energy, e-mobility and defence applications
- REE Permanent Magnets (REPM) are the most significant and lucrative demand drivers for REE
- US government has prioritised REE/ REPM supply chain and offered financial incentives as a “strategic national priority”

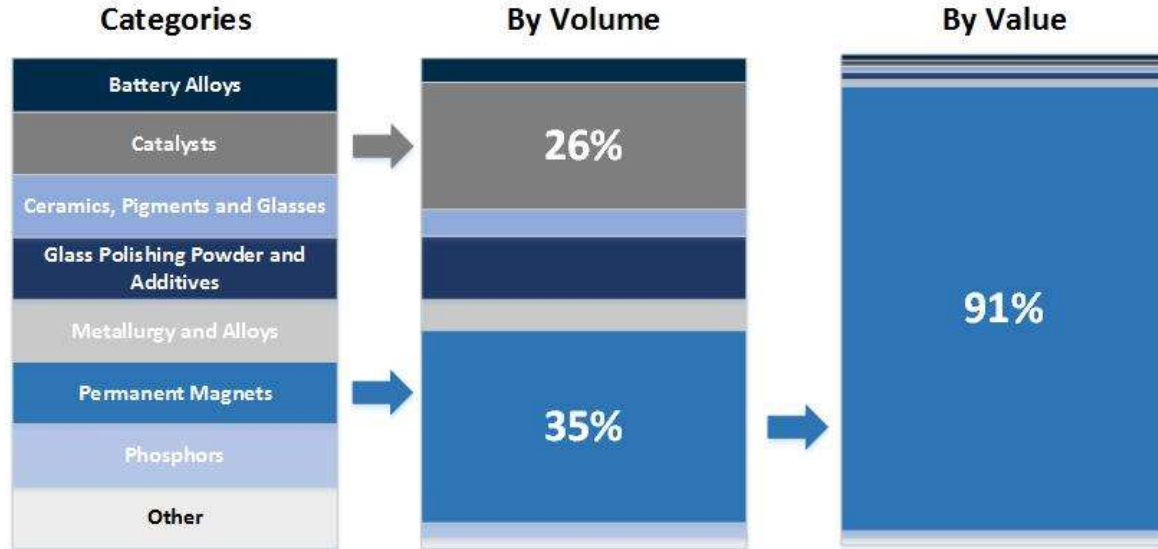
REE Value & Demand

Business strategy is focused on ‘the Magnet Metals’ for rare earth permanent magnets (REPMs) - Pr, Nd, Tb & Dy

Light REE*(LREE)*

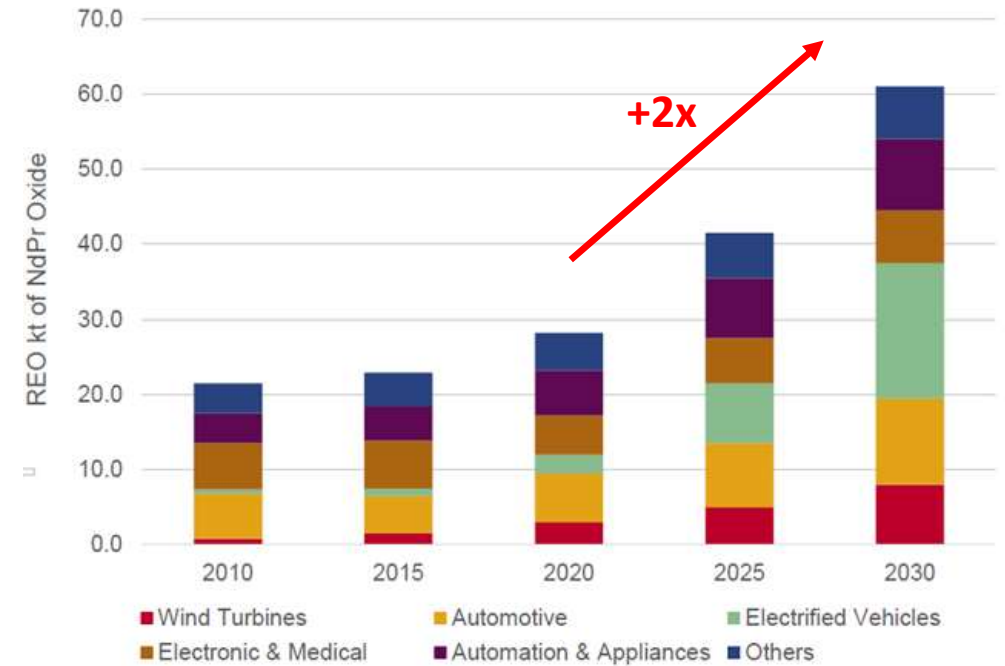
Heavy REE (HREE)
[*omitted 61 - Pm
unstable & radioactive]

21 Sc Scandium 44.955908	57 La Lanthanum 138.90547	58 Ce Cerium 140.127	59 Pr Praseodymium 140.90766	60 Nd Neodymium 144.242	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25
39 Y Yttrium 88.90584	65 Tb Terbium 158.92535	66 Dy Dysprosium 162.500	67 Ho Holmium 164.93033	68 Er Erbium 167.259	69 Tm Thulium 168.93422	70 Yb Ytterbium 173.045	71 Lu Lutetium 174.9668



Source: Adamas Intelligence

Global demand for NdPr Oxide

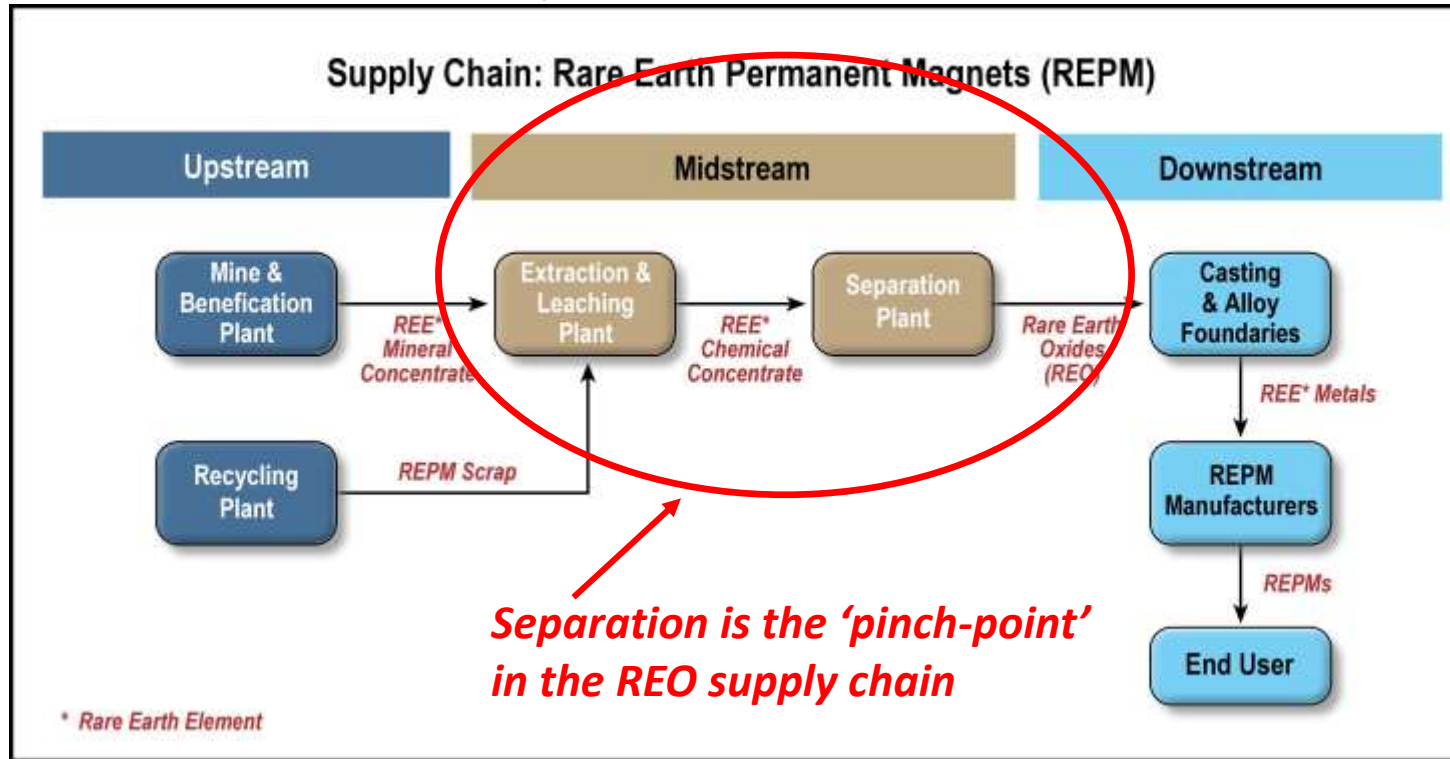


Source: Lynas

2x demand growth forecast for NdPr – the most common LREE magnet metals, for next 10 years

REE Supply Chain – for REPMs

Simplified REPM Supply Chain



Complex Processing

- REEs are hard to separate – requires complex and expensive processing
- 100% of all REE separation is by conventional solvent extraction (SX)*
- Separated products are converted into high-purity, high-value REOs

Q. So what is the problem?

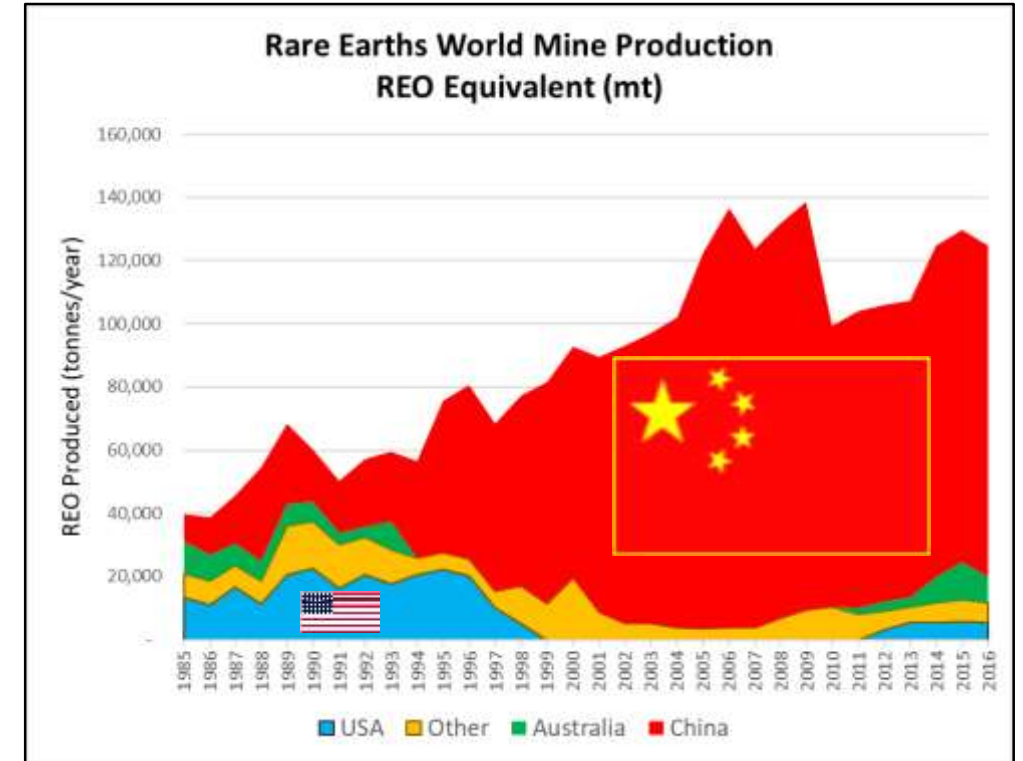
* SX is a process to extract dissolved metals from a liquid; specific reagents in an organic liquid, 'pluck' the targeted metals from the 'acid or aqueous' liquid. Due to the dilute nature of the metals in the aqueous phase this requires large volumes of costly reagents and subject to the REE products targeted, requires multiple separation stages particularly if separating specific HREEs.

A. China dominates the global REE market

- 70% of global REEs production
- 86% of global REOs production
- 95% of global REPM production

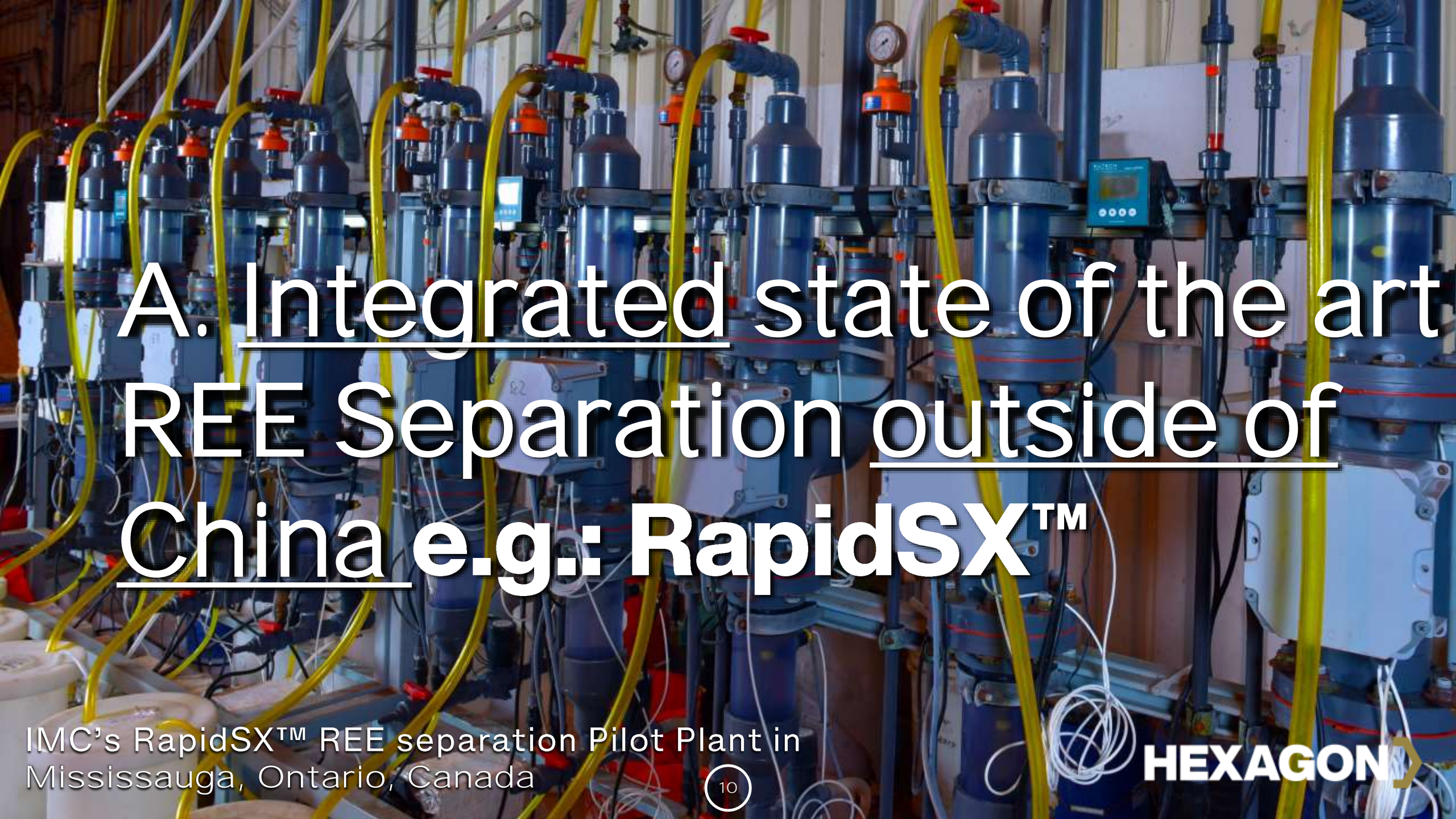
China has:

- Established, capital-intensive 'conventional' SX REE separation plants
- 'form' in REE price & supply manipulation



Data compiled by HXG – sourced from USGS & BAIINFO

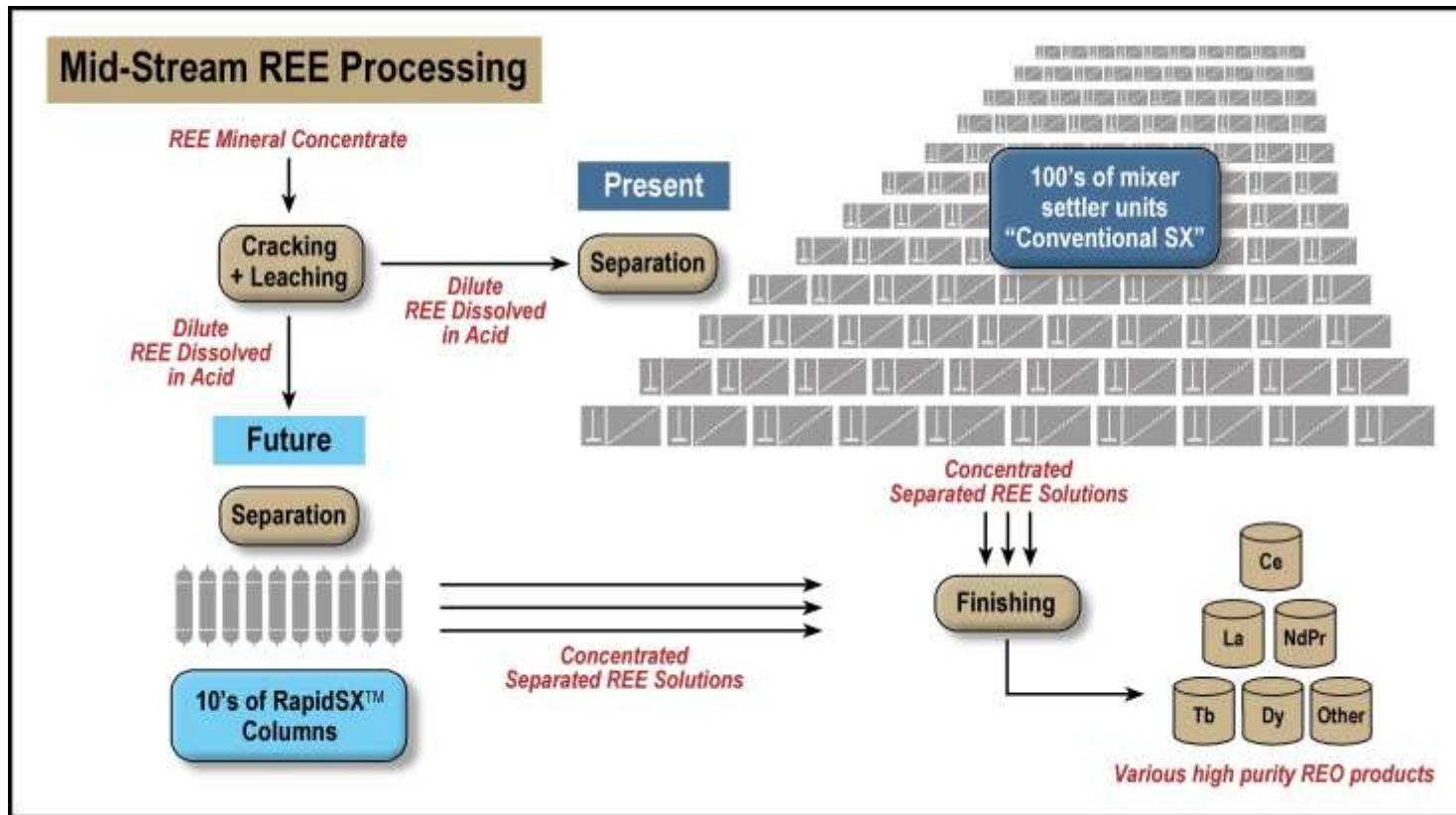
Q. How can we diversify the REE supply chain?

A photograph of a complex industrial pilot plant for REE separation. The system consists of multiple vertical extraction columns connected by a network of yellow and blue hoses. Various valves, gauges, and control units are visible throughout the setup. The background shows a typical industrial facility with concrete walls and structural elements.

A. Integrated state of the art REE Separation outside of China e.g.: RapidSX™

IMC's RapidSX™ REE separation Pilot Plant in
Mississauga, Ontario, Canada

Q. What choices do producers have?



Option 1 – *“take a big hit”*

Sells concentrates to China and loses c. 50% of the REE basket price value

Option 2 – *“millions more debt/equity \$”*

Spend 10's of millions more dollars on a conventional SX separation plant

OR

Option 3 – *“RapidSX”*

- Lower capital – less staging
- Lower OpEx
- Enhanced performance

RapidSX™ – enabling producers to capture greater value on a cost-competitive basis with China

RapidSX™ - Proven Approach to REE Separation

- Innovation Metals Corporation (IMC) successfully developed and piloted the RapidSX™ process for REE separation
- **Same 'science' and chemistry as conventional SX** – but with modified media and liquid interaction to significantly accelerate metal recovery
- Pilot testing completed - facilitated by US\$1.8M funding from the US Department of Defense on LREE and HREE feedstocks

Successful piloting of RapidSX™ on REE separation demonstrated fast and cost-effective production of REOs

RapidSX™ - Investment Agreement

Hexagon has an Option to acquire a 49% interest in RapidSX™ for REE for US\$2.0M before 10 October 2020



- AIM is the incorporated JV vehicle to commercialise RapidSX for REE on exercise of the Option
- The AIM Shareholder Agreement gives each party an 'Equal' voice in managing the JV company
- AIM has an exclusive, worldwide, non-transferable royalty free licence to use RapidSX for REE
- Post commercialisation – Hexagon will pay IMC US\$4.0M – payable from 50% of its share of future AIM profits

RapidSX™ vs Conventional SX

RapidSX™		Conventional Solvent Extraction
Performance & Efficiency		
Commercial Purity	Yes	Yes
REE Recovery Rates	High	High
Processing Time	Rapid	Slow
Time to Equilibrium	Hours/Days	Several Weeks
CAPEX		
Equipment Cost	Significantly Lower	High
Separation Staging	Significantly Lower	High
OPEX		
Metal Inventory/WIP	Low	High
Organic Volumes	Low	High
Labour	Low	Medium
Power Consumption	Low	Medium

Findings to date indicate:

Increased Separation Kinetics

Reduced metal residence time

Low CapEx

Considerably reduced footprint

Low OpEx

Significantly reduced separation times

<\$2/kg for LREOs and <\$12/kg for HREOs*

Commercially Available

All construction materials, equipment and chemistry are readily available with no 'black-box' technology

Scalable & Modular

Process lines are modular and scalable

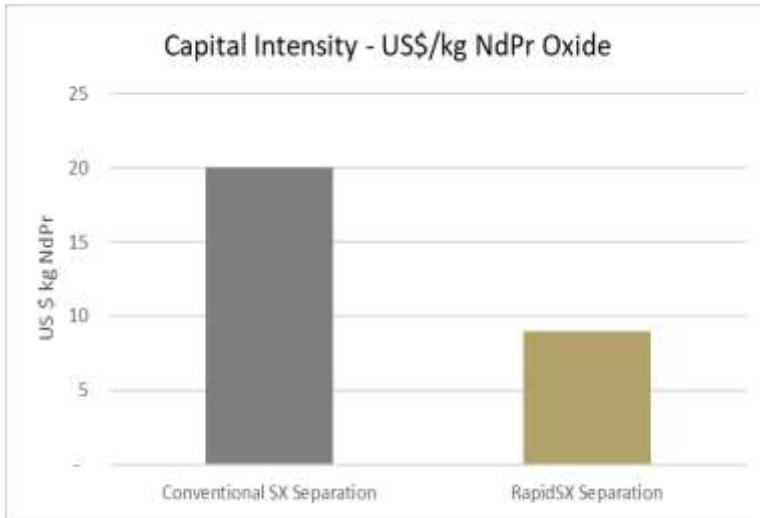
* From Pilot Testwork



RapidSX vs Conventional SX

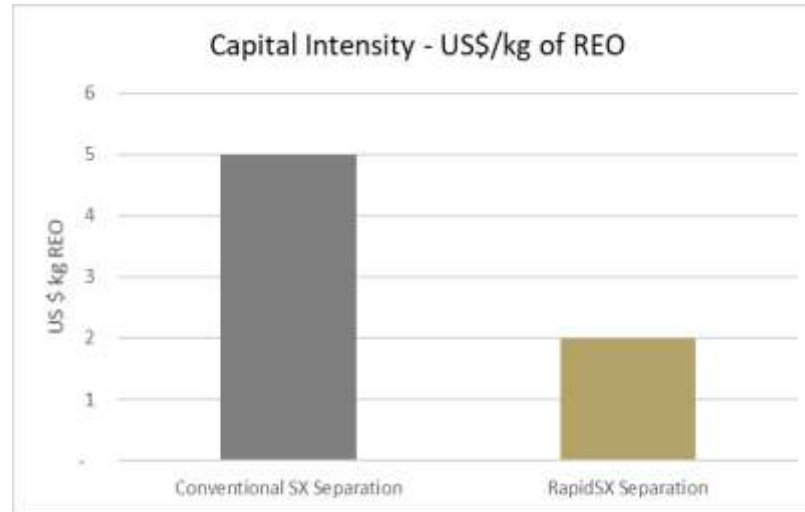
For a “typical*” LREE feedstock type:

Capital Intensity – US\$/kg NdPr



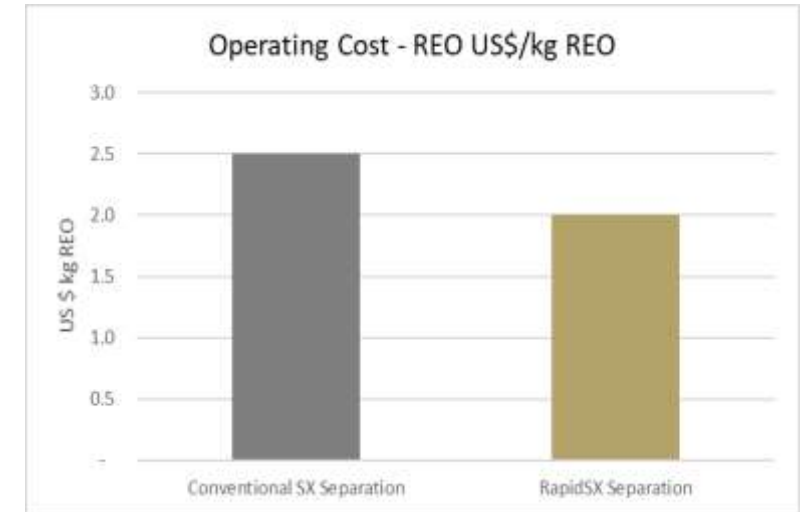
+50% CapEx
Saving

Capital Intensity – US\$/kg REO



50-60% CapEx
Saving

Operating Costs – US\$/kg REO



+5-20%
OpEx Saving

CapEx - **10's of millions \$ saved per project**

Potentially greater savings for HREE deposits which require more processing

OpEx – millions \$ saved
per project/year

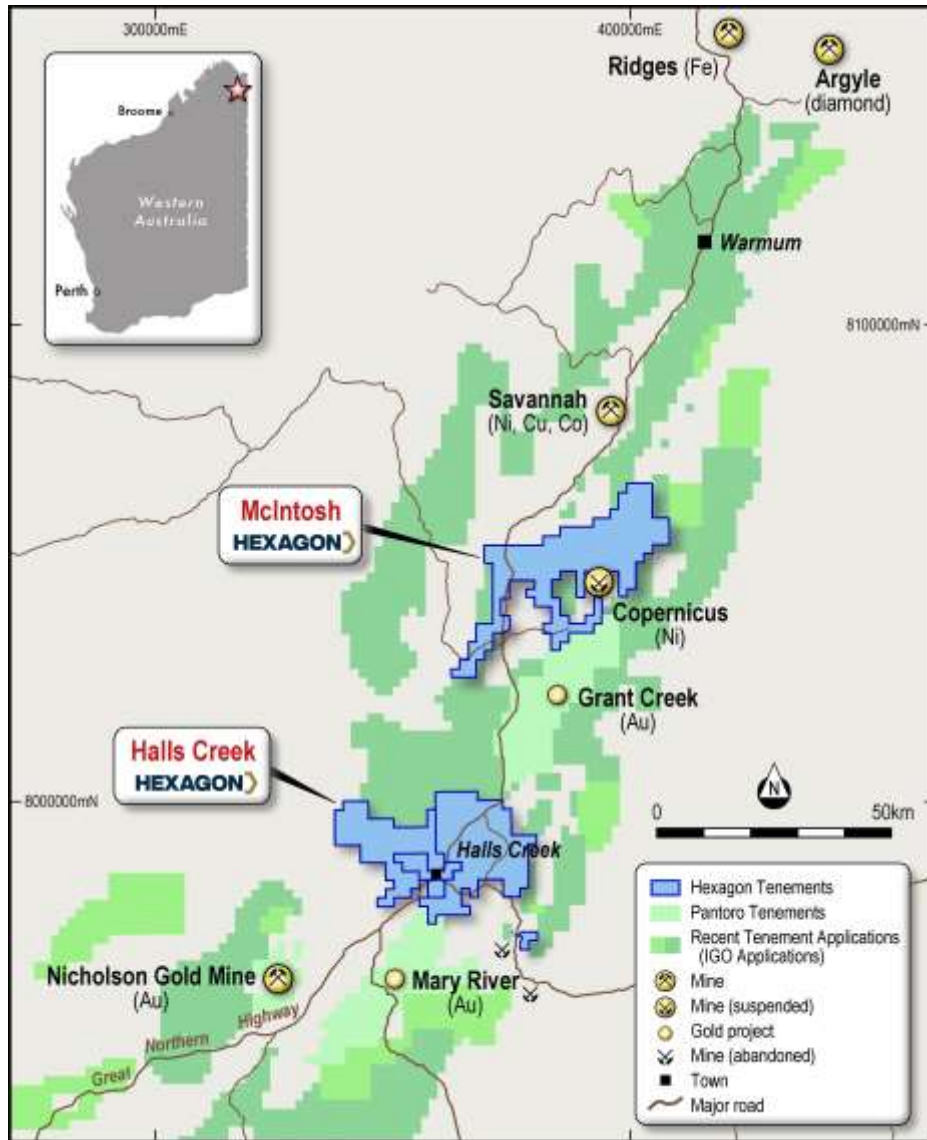
*Based on compilation of public data from producing and advanced stage projects and IMC data from pilot plant testwork – further work ongoing.

Commercialisation pathway

- The value drivers
 - ✓ Greater REE value capture selling refined REO products rather than mineral concentrates
 - ✓ Enables on-site separation – lower CapEx and OpEx as well as operational control
- Build-out of a commercial demonstration plant (CDP) is a major de-risking step
 - ✓ Kingston Process Metallurgy Inc to host and manage demonstration plant located in Canada
 - ✓ Vital data - CapEx, OpEx and REO samples for marketing from actual feedstock material
 - ✓ CDP planned capacity of 6,000–8,500 kg/month of REOs and available in early 2021
- Revenue Models* - potential options
 - ✓ **RapidSX™ Technology Licencing Fees** – based on leverage to CapEx and OpEx savings
 - ✓ Build, Own & Operate separation plants to produce REOs on collaborative basis with REE concentrate suppliers and **non-compete with RapidSX™ Licence holders**

**subject to feasibility level studies on various planned feedstocks*

Exploration Assets



Hexagon has two, 100% owned exploration projects in Western Australia

- Halls Creek Gold Project – 657km² of tenements prospective for high grade gold and VMS style base metals deposits
- McIntosh Project – 550km² of tenements with significant potential for “Nova style” magmatic nickel-copper mineralisation. As well as existing graphite Mineral Resources* of 24mt at 4.5% TGC for 1.1mt contained graphite

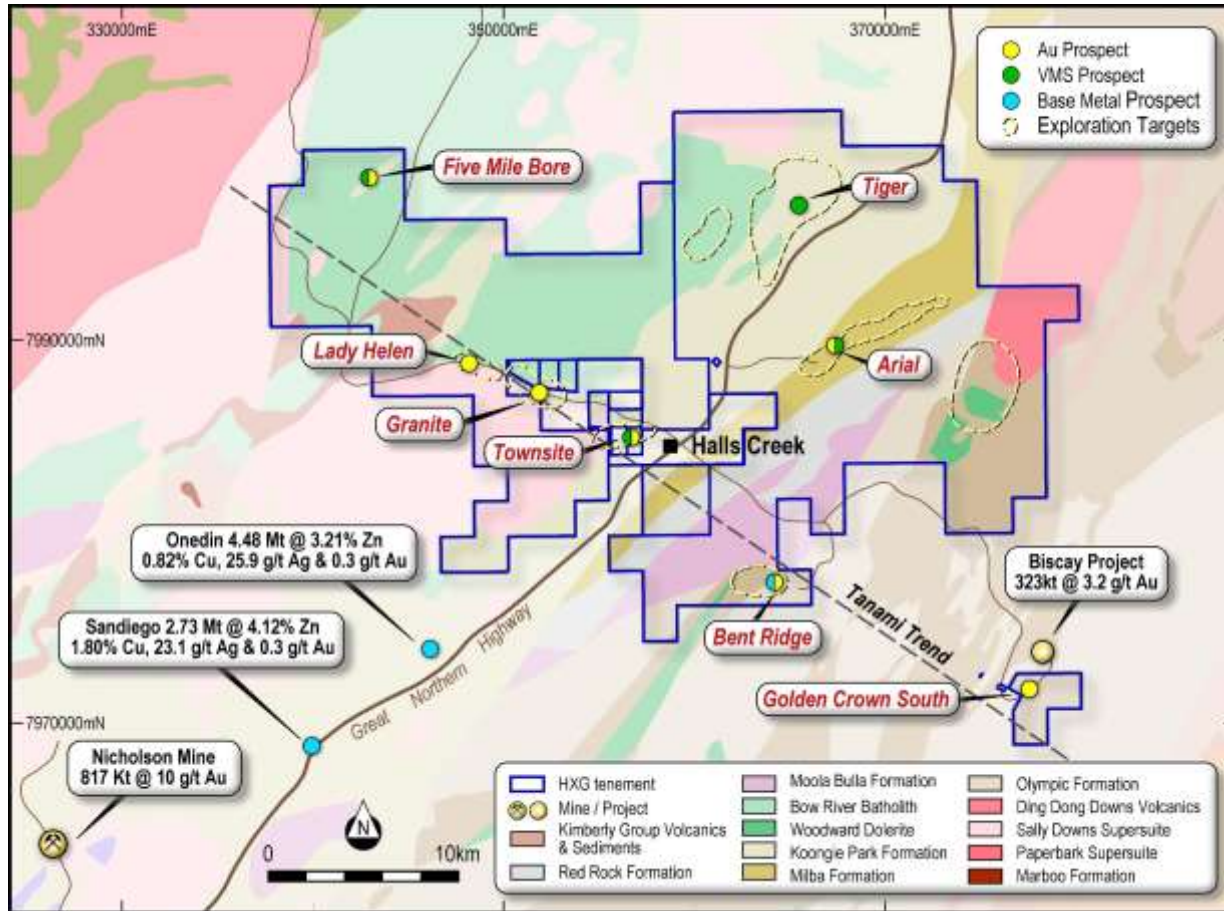
‘These are valuable, highly prospective assets which the Company can work on and add value to, for modest expenditure during these COVID restrictions’

Hexagon’s Managing Director, April, 2020

* ASX Report 5 April 2019

Exploration – gold & base metals

High grade gold potential; drilling planned – August/September 2020

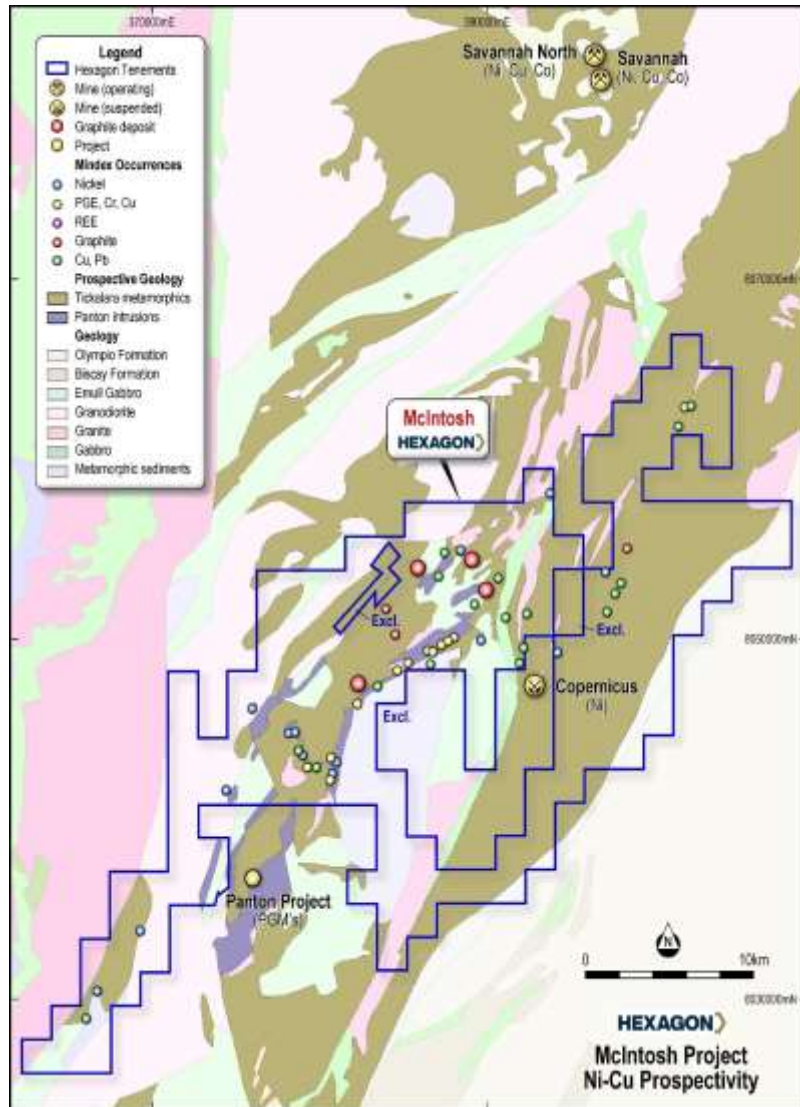


Halls Creek Gold Project:

- Historical drill intercepts of 4m @ 22.6 g/t Au & 17.3 g/t Ag from surface at Lady Helen Prospect
- Numerous untested, drill ready gold and base metal targets. Rock chip samples of up to:
 - ✓ 26 g/t Au at Townsite Prospect
 - ✓ 10.7% Cu at Ariel Prospect
 - ✓ 1.3 g/t Au at Bent Ridge Prospect
 - ✓ 36 g/t Au and 47 g/t Ag from Lady Helen Prospect
 - ✓ 11.5 g/t Au at Granite Prospect (on ELA80/5126 and east along the Lady Helen contact zone)

Exploration – nickel-copper, graphite

Ni-Cu-PGE potential – highly prospective terrain coming under increased focus



McIntosh Project

New exploration technology and deposit models causing increased interest in this 'underexplored' Proterozoic terrain straddling the 1.8 ga 'global mineralising event' time horizon

- Economic potential for “Nova style” magmatic nickel-copper deposits
- Located immediately along strike of two known economically viable nickel-copper and PGE deposits
- **Historical exploration on Hexagon's tenure was successfully focussed on graphite.** But ignored new Ni-Cu discoveries and resultant mineralisation models and targeting criteria
- Existing multi-million dollar virtual database available, including airborne EM data, which has not been interpreted with base metals as a primary focus (EM was flown and interpreted targeting graphite)

Exploration is underway



Competent Persons Attribution

Exploration Results

The information within this presentation that relates to exploration results and geological data at the Halls Creek and McIntosh Projects is based on information compiled by Mr. Michael Rosenstreich who is an employee of the Company and consultant Ms. Cherie Leeden (consultant with NV Resources). Mr. Rosenstreich is a fellow of the Australian Institute of Mining and Metallurgy and Ms. Leeden is a member of The Australian Institute of Geoscientists.

They each have sufficient experience relevant to the styles of mineralisation and types of deposits under consideration and to the activities currently being undertaken to qualify as a Competent Person(s) as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves and they both consent to the inclusion of this information in the form and context in which it appears in this report.



Hexagon Price Catalysts – H2, 2020

REEs

- HXG to secure strategic business development partner and exercise US\$2 million option for RapidSX
- Participation and strategic input of AIM JV company for RapidSX for REE
- Enhancements and optimisations to RapidSX – ongoing targeting of lower costs and improved performance
- **Updates on Hexagon's REE business development strategy and plans**

Other

- Halls Creek exploration results – surface sampling, mapping and drilling
- McIntosh – nickel-copper and PGE targeting activities
- Graphite developments

Contact

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