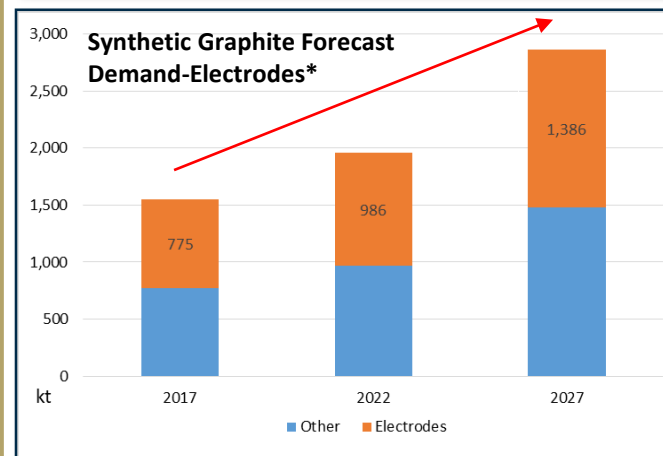
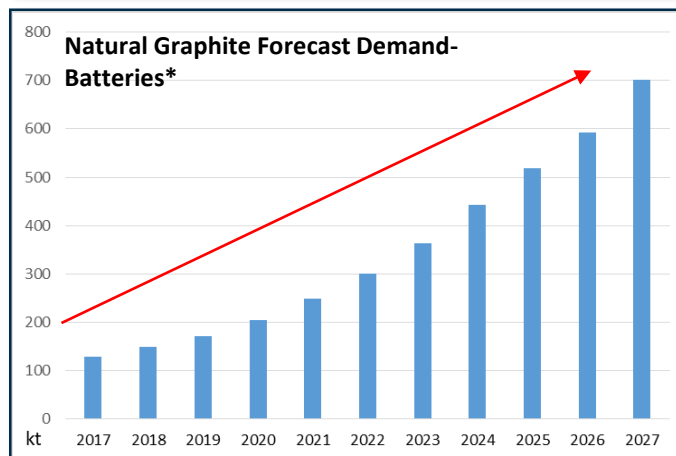




“Energy storage & EVs”



“Industrial applications”

**BUILDING A DIVERSIFIED HIGH-QUALITY GRAPHITE BUSINESS**  
*Leveraged to high growth demand in the energy storage and industrial sectors*



*Hexagon has the expertise to understand the graphite market and position itself to maximise value*



# Clear Business Strategy

The Strategy is to become a vertically integrated, advanced materials company, producing quality graphite products into a diverse range of premium end-use markets

## 1. Implementing the strategy:

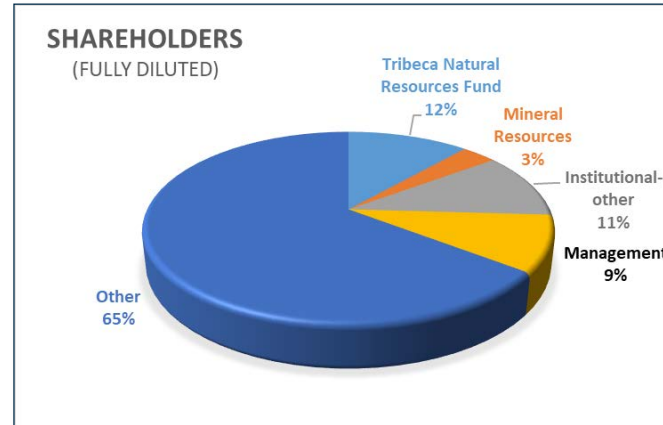
- ✓ Analyse graphite market – *its complex and highly fragmented nature*
- ✓ Identify high volume / high priced segments and understand the technical specifications
- ✓ Identify high-growth segments where HXG has natural advantages
- ✓ Engage with end-users to match requirements, verify quality of HXG material and generate sales – from its own source feedstocks e.g.. McIntosh Project

## 2. Focused on fastest, sustainable path to cash flow



# Hexagon at a Glance

ASX Code	HXG
Shares on Issue	291.8M
Options on issue	24.4M (unlisted)
Share price (9/11/18)	A\$0.16
12 Month high/low	A\$0.28/A\$0.09
Market Capitalisation	A\$49M
Debt	Nil
Cash (30/06/2018)	A\$6.5M

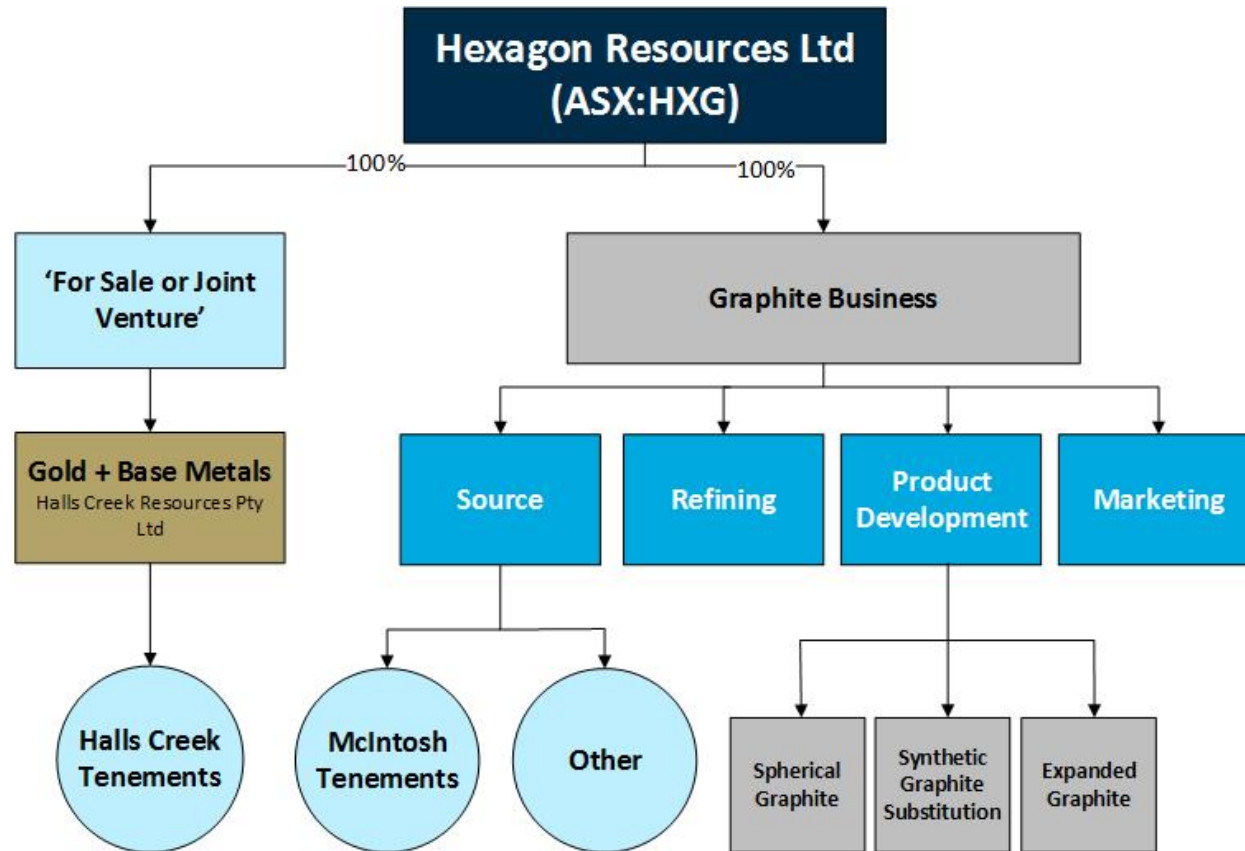


**Board of Directors:** (from Left); M. Rosenstreich (MD), Charles Whitfield (Chair), Garry Plowright (NED) and Rowan Caren (CoySec.)

## Emerging, low-risk, funded graphite business

- ✓ Upstream (Stage 1) development c. 100ktpa of high-grade graphite concentrates for a diverse range of premium priced end uses.
- ✓ Initial source – McIntosh Project is fully funded to commercial production with Mineral Resources (ASX:MIN) earning 51% project interest, subject to positive Feasibility Study.
- ✓ Exceptional downstream processing attributes and cost profile – suitable for premium end of energy storage, tech applications and traditional industrial uses.
- ✓ Safe, stable jurisdiction with project located in Western Australia.

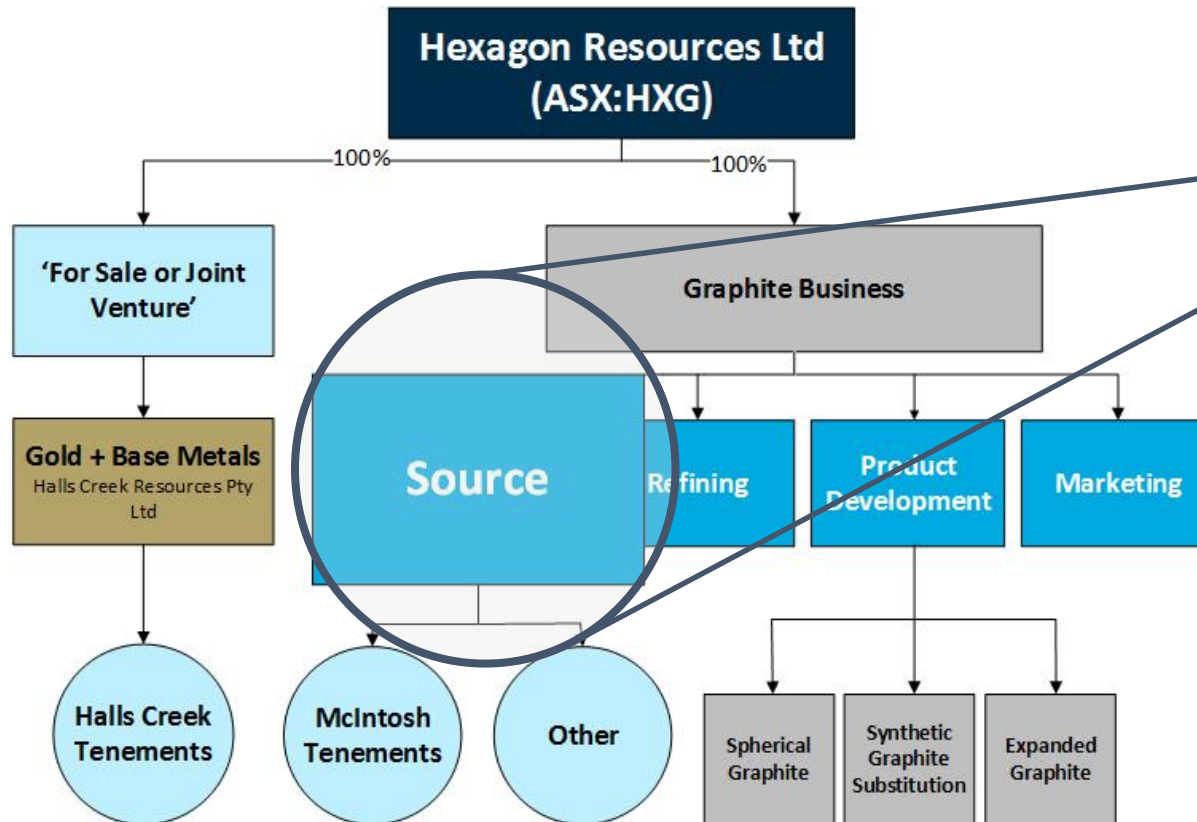
# Business Structure



**HXG business is organised, aligned to the graphite value chain:**

- **Source** – demonstrated high-purity, crystalline, natural flake graphite
- **Refining** – proprietary, low cost process to achieve ultra high purity
- **Product Development** – to cater to a diverse range of premium end users
- **Marketing** – finding the premium niches in a highly fragmented market
- **“For Sale”** – non core but highly prospective exploration assets

# Business Structure



**Source – the right “in-ground” material is critical to be competitive in high-quality markets**

## The McIntosh Project:

- Has clean mineralogy to make high-grade concentrates
- Is Large scale for long term project
- Funded through to Commercial Production

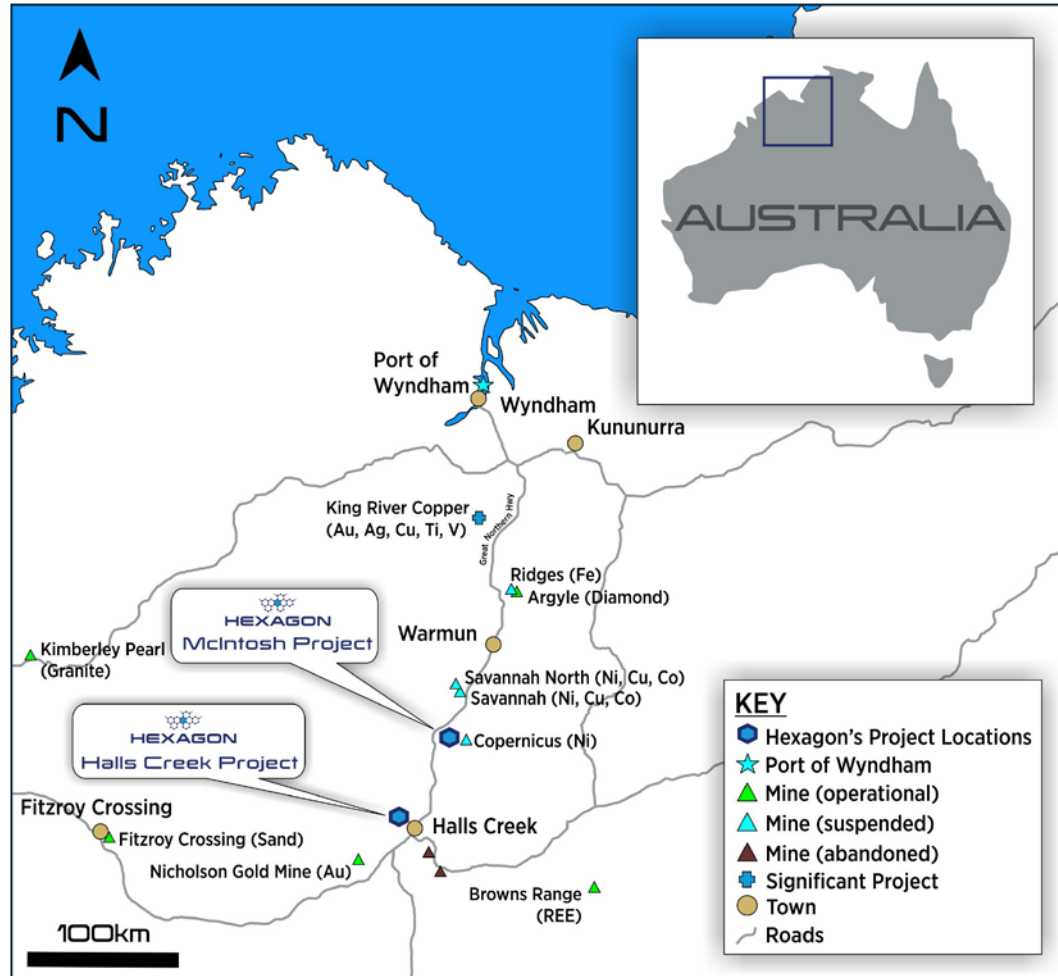
## Other Opportunities

- HXG has and will continue to secure sources that have the properties to produce premium quality graphites.



# Source - Overview

## McIntosh Graphite Project – large-scale deposit in mining-friendly jurisdiction



### Current Stage 1 – Mineral Resources.

JORC Classification	Tonnes (Mt)	TGC (%)	Contained Graphite (kt)
Total Indicated & Inferred	21.3	4.5%	964

Full Mineral Resources Table & Location Plan in Attachment 1

✓ Major drilling program recently completed.

### Exploration Target\* (additional to Mineral Resources)

Prospect	Tonnage Range (Mt)	Grade Range TGC (%)
Total	110 - 220	2.5 – 5.0

✓ Customers are attracted by “long-term supply” from large scale projects.

**\*Cautionary Statement:** The potential quantity and grade of the Exploration Targets is conceptual in nature, there has been insufficient exploration work to estimate a mineral resource and it is uncertain if further exploration will result in defining a mineral resource.

# Source – McIntosh Project - planning for future development



**Stage 1:** Multi open pit mining, simple flotation at c. 2.4Mtpa to produce c. 100,000tpa of high-grade (97-98% TGC) graphite concentrate, likely across 3 flake sizes.



# Source – McIntosh Joint Venture (MJV)



## Partnered with ASX listed Mineral Resources Limited (ASX:MIN)

- Mineral Resources Limited (**MRL**) to fund all Feasibility Study work, capital development and ramp-up costs to achieve Commercial Production to earn a 51% interest in the McIntosh Project (subject to a positive feasibility study)
- MRL to manage the MJV to provide “pit to wharf” service to the MJV

### Risks Mitigated

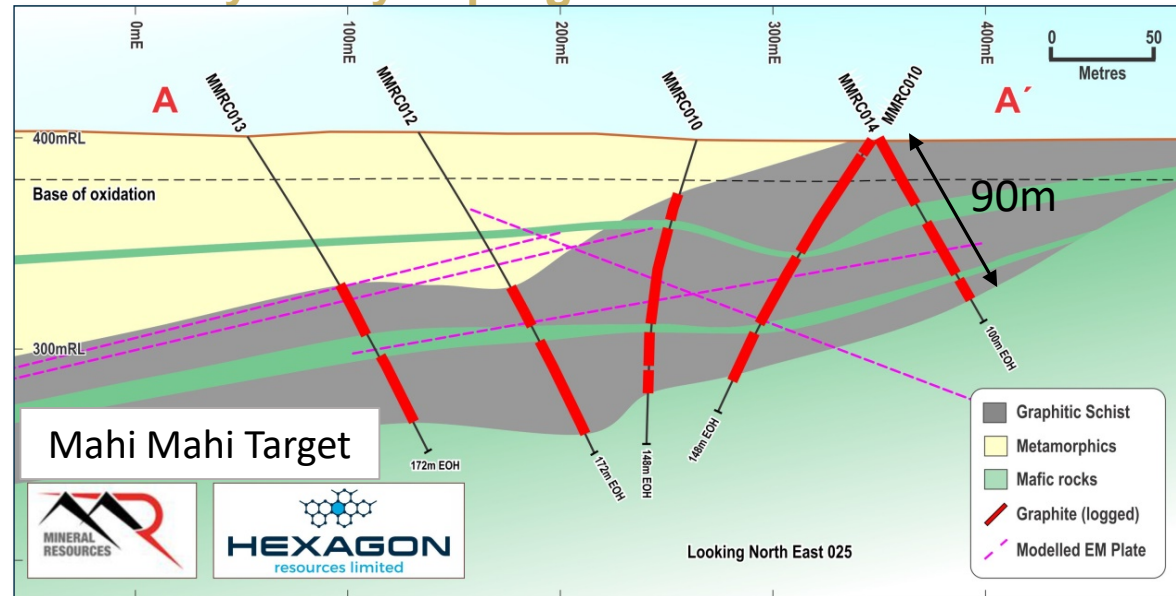
- No exposure to dilutive capital raisings to build Stage 1 or ramp-up problems or delays
- Reduced operational risks – *MRL is an experienced WA mine operator*
- No third party project debt, convertible notes, securities etc. – *simple financing at the Project level*



***“the joint venture with MRL is a major de-risking event for HXG, which is fully funded to commercial production”***

# Source – McIntosh Joint Venture Update\*

## Feasibility Study in progress



## New Targets – Confirming Exploration Targets

- Mahi Mahi - 90 metres of shallow graphite
- Threadfin - 20 metres of shallow graphite

## Resource Infill/Met Samples

- Emperor - indicates graphite occurs at shallower levels, highlighting potential for improved open pit mining economics.



*“major drill program completed; aim is to upgrade resources, provide metallurgical samples and test new target areas – all positive results to date”*

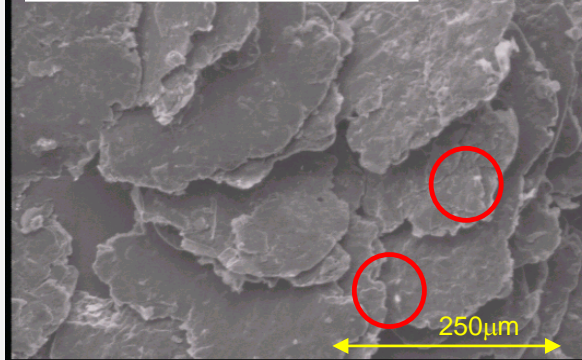
\*Refer ASX Report dated 8 October, 2018.

# Source - McIntosh Graphite™ Marketable Attributes

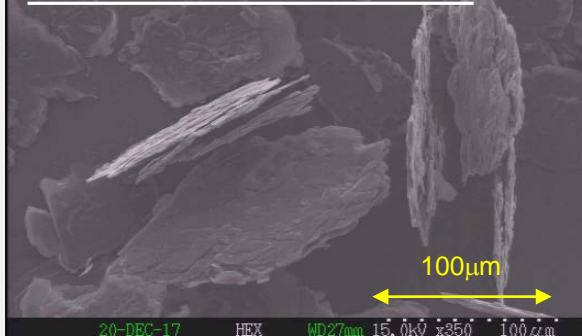
## Purity

High purity, high value & low purification cost

Before - 97.5% Wt C



After – 99.9998% Wt C



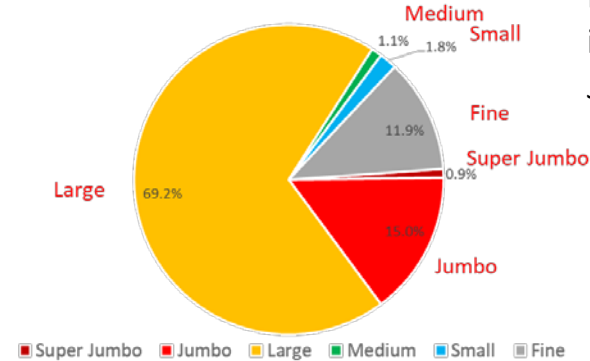
Impurities (circled-top) tend to occur on top of the flakes not embedded into the flake layers making for “easier” purification;

99.9998 wt.% C was achieved by a proprietary thermal purification technique.

- **Price premium:** *Five Nines* is the “nuclear purity world”.
- **Low cost:**
  - ✓ Surficial impurities - require only “light” purification.
  - ✓ HXG planning to adopt proprietary but proven, highly efficient, furnace technology.
- **Low Environmental impact:**
  - ✓ No HF acid leach.
  - ✓ Less energy compared to other thermal technologies.

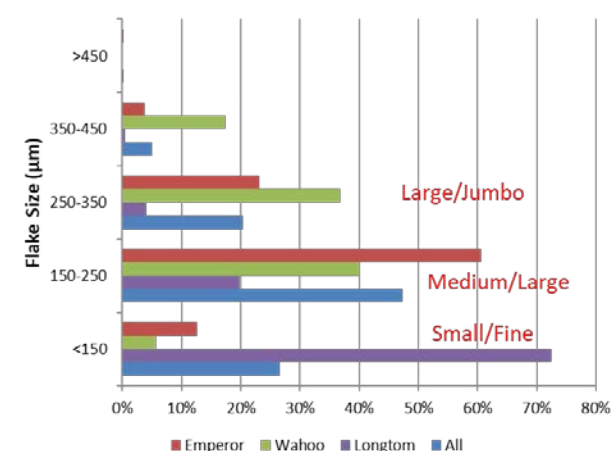
## Flake Size

Flake Size Categories - HXGCon1



Emperor deposit - 85% of Flake in Concentrate sample is Large, Jumbo & Super Jumbo size.

Flake Size Distribution by Deposit



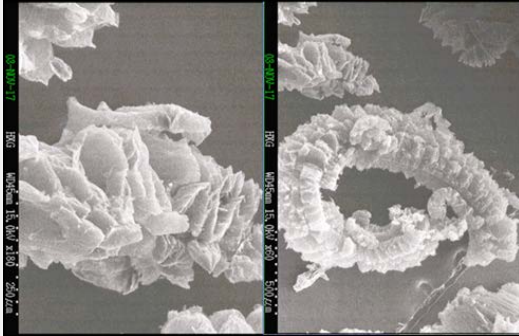
Emperor & Wahoo dominantly Large/Jumbo flake and comprise 70% of the McIntosh Project Mineral Resource.



# Source - McIntosh Graphite™ Marketable Attributes

## Expandable

### 220% Expansion Factor for + 60 Mesh Flake (+250um)



Expanded graphite "worms" produced from +60 mesh fraction of HXGCON 1 precursor flake: optical (top), SEM (bottom).

#### High proportion of Large/Jumbo sized flake:

- >78% of concentrate flake (HXGCon1) was larger than 60 Mesh (250 um)

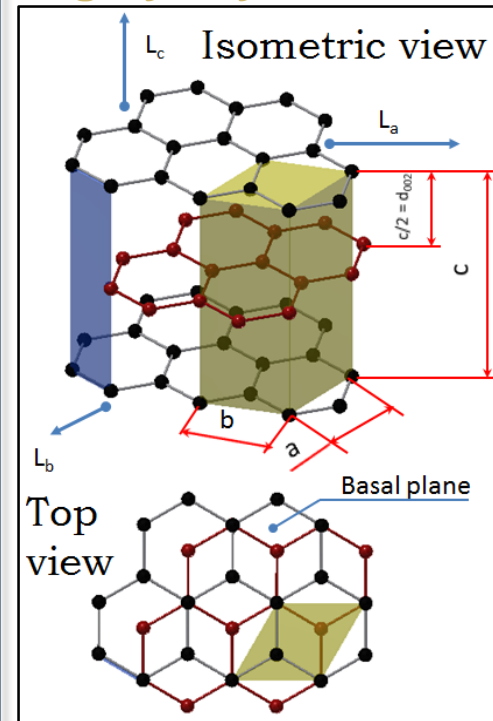
#### Easy Expansion:

- no exotic chemicals or complicated treatments
- translates to – Low Costs.

#### Strong demand growth due to:

- Shortfall of large flake in China; and
- Increased demand in fire retardants and electronics e.g. as conductivity enhancement material (CEM) in advanced alkaline, lithium and lithium-ion batteries.

## Highly Crystalline



**HOPG** – rare attribute

**H**ighly **O**rdered **P**yrolytic **G**raphite\*

Highly crystalline, near all-hexagonal preferred crystal orientation – *vital aspects to compete with premium quality synthetic graphite products.*

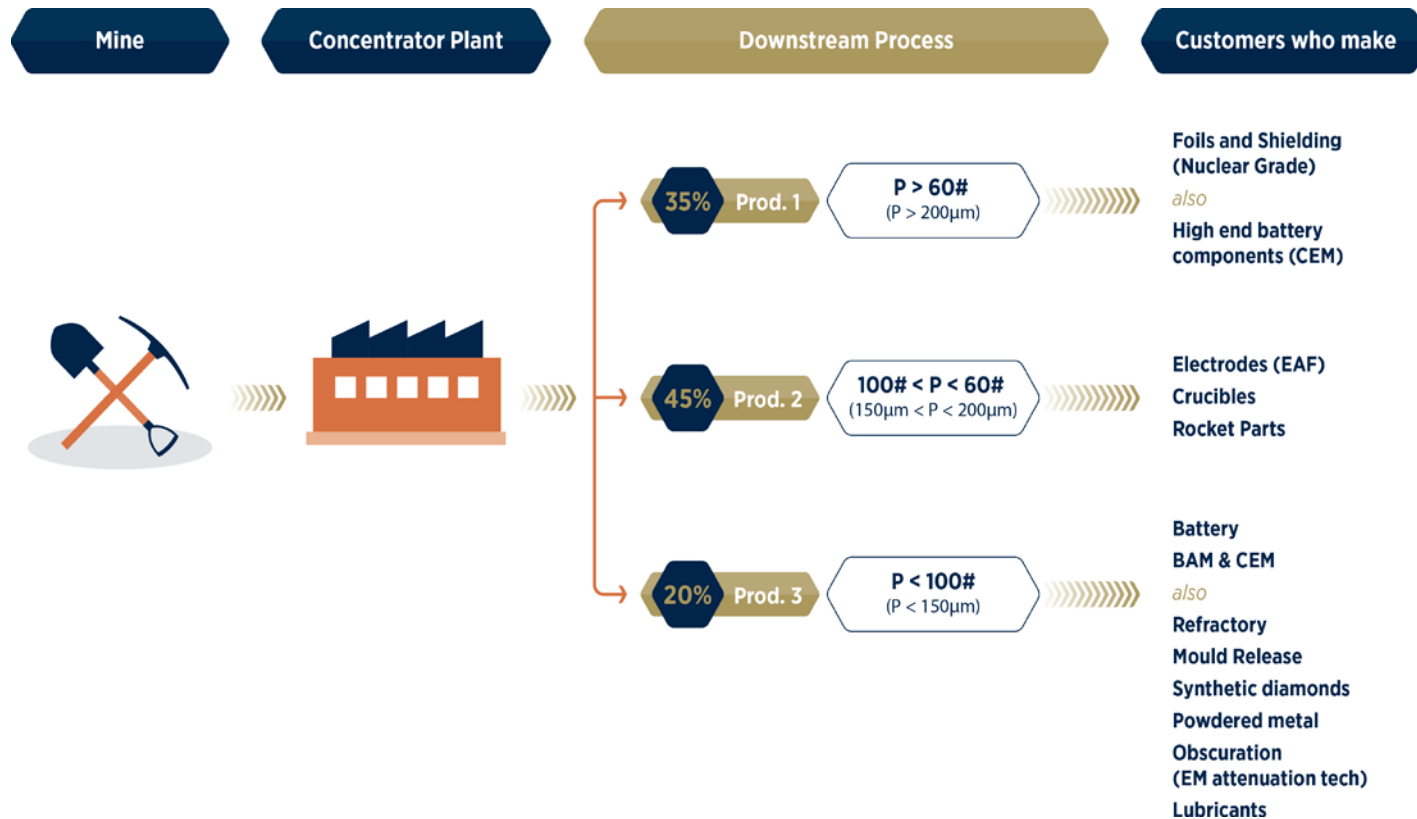
- higher electrical conductivity,
- greater reversible capacity towards lithium ion intercalation,
- superb thermal management properties and
- better lubricity for ultra-purified material.
- Higher selling price.

- **High-cost, synthetic graphite producers aspire to reach these technical specifications.**
- **McIntosh Graphite – can out-compete synthetic on price and quality**

\*Independent testing conducted by Argonne National Laboratory which is operated by the US Department of Energy.

# Source – the production case

A diverse and sought after product range – from the “Upstream”



Stage 1: 100ktpa planned output, comprising 3 graphite concentrate products:

✓ **Product 1 - “Expanded Line”**

destined for foils and shielding (nuclear grade) and Conductivity Enhancement Materials (CEM)

✓ **Product 2 - “Electrode Line”**

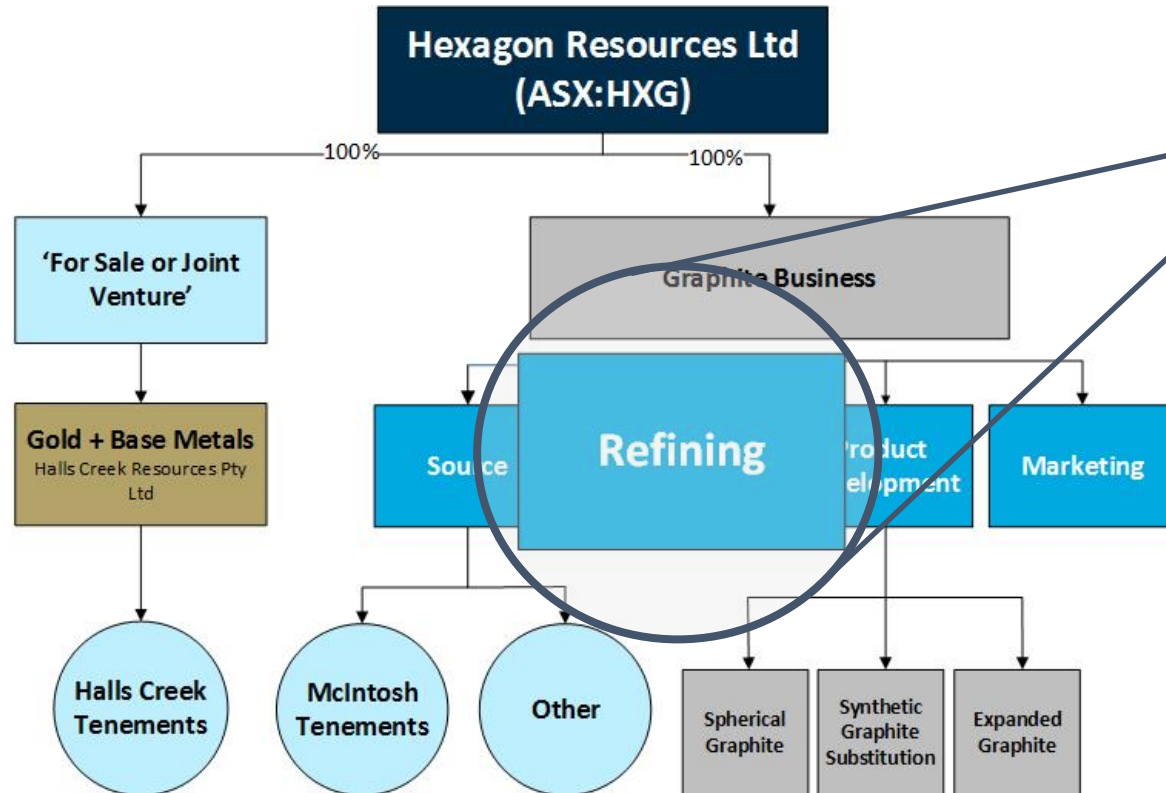
suitable for a wide range of customers but HXG’s focus is on electrodes in Electric Arc Furnaces (EAF) substituting for synthetic graphite on the basis of enhanced technical properties.

*(Wide size range – could be split into 2 around the 80 mesh sizing)*

✓ **Product 3 - “Battery Line”**

destined for lithium ion Battery Anode Material (BAM) and CEM. Also suitable for a range of high-end industrial applications e.g. refractory (in furnace ladles and crucibles), mould release as well as emerging applications such as synthetic diamonds (for semi-conductors) and Obscuration (EM attenuation) technology.

# Business Structure



**Refining** – is a key distinguishing feature of HXG’s business strategy:

- Cost Advantage - McIntosh flake “easy to purify”; and
- Utilisation of highly productive, established, state-of-the-art refining technology which enables access into high-volume markets.



# Refining

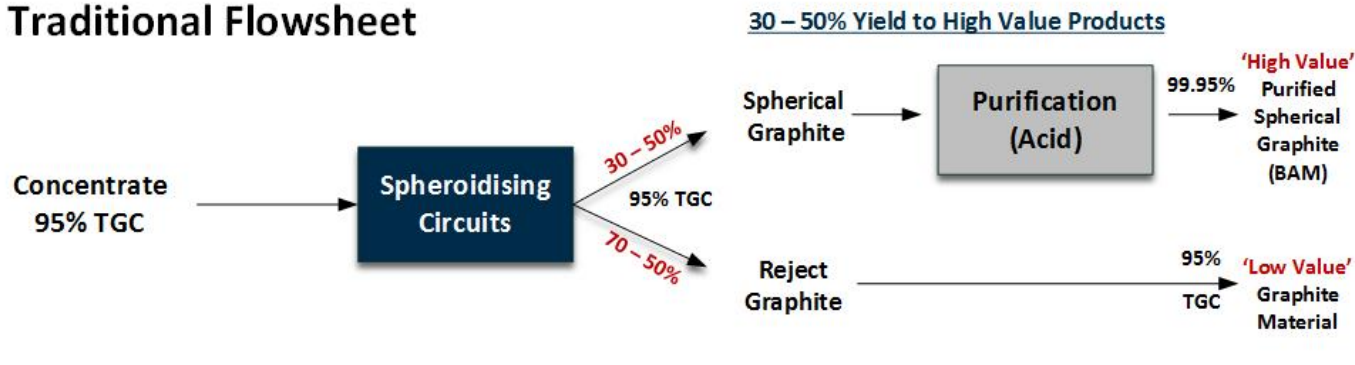
A core pillar of the down stream business strategy



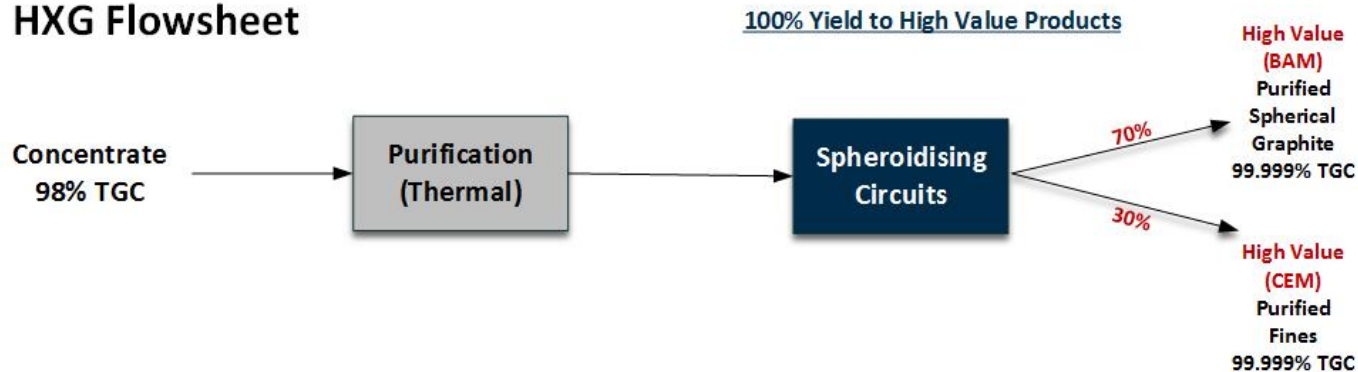
HXG's modified flow sheet – refining first; because it is low cost and produces high-value end products.

Here's an example for the Battery Materials stream:

## Traditional Flowsheet



## HXG Flowsheet



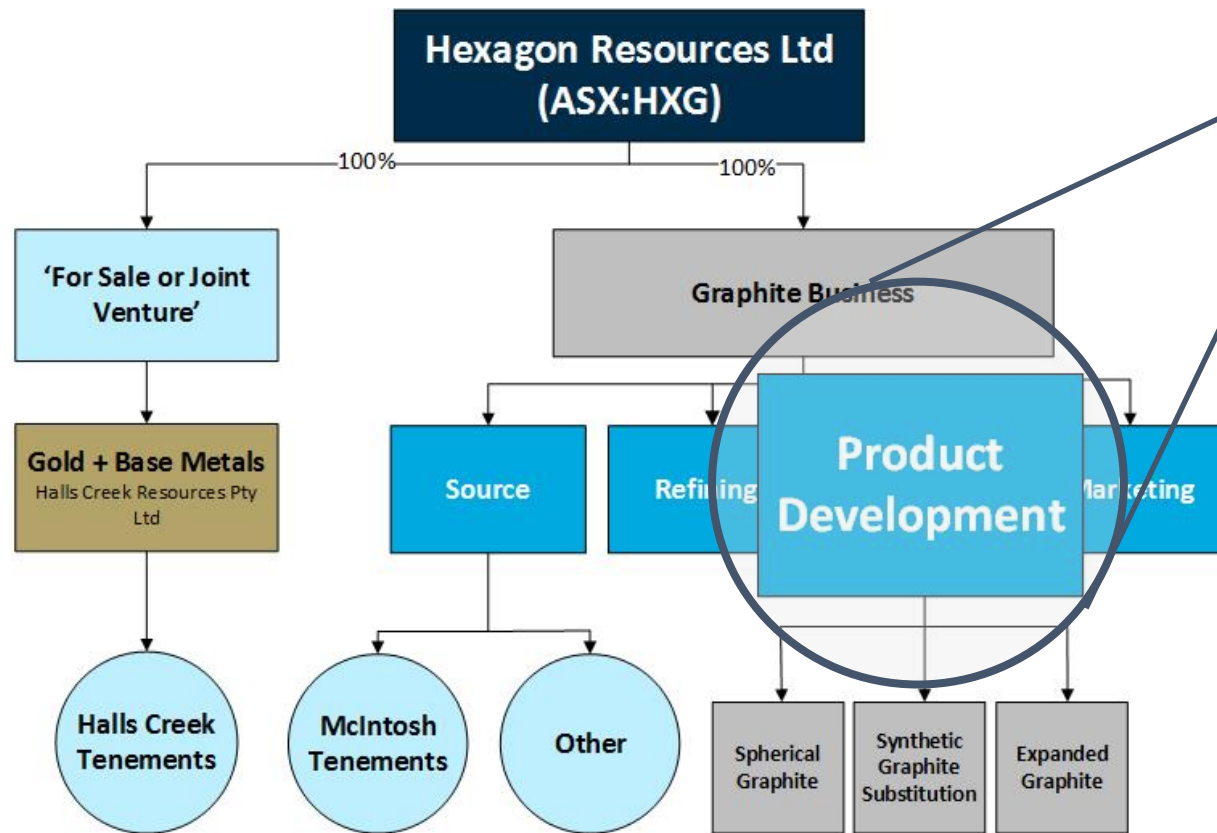
HXG is proposing an innovative downstream flow sheet based on:

- **Low Cost**, first stage purification:
  - ✓ Targeting purification costs less than current HF acid leaching carried out in China – c.US\$600/t
  - ✓ Easy purification attributes of the McIntosh flake
  - ✓ Utilisation of a proven, but proprietary refining furnace technology

Resulting in:

- Higher yields to high-value products
- Premium pricing for refined “Raw Materials” as a means to fast track downstream value adding
- More environmentally friendly
- No contamination e.g. halides, from acid leaching

# Business Structure



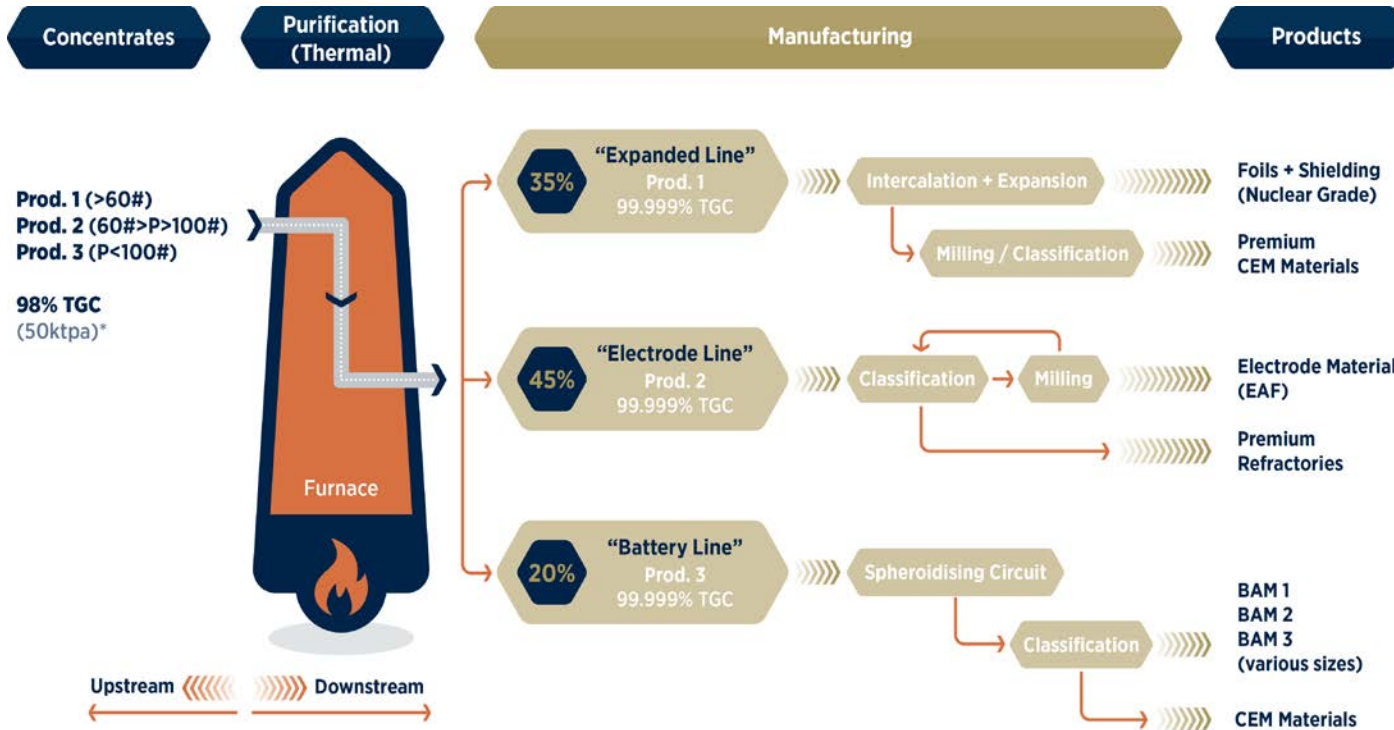
## Product Development

The 3 product streams reflect diverse opportunities, enabled by:

- **Purity** – ultra-high and low cost;
- **Large flake** - majority Large & Jumbo size; and
- **Easy milling** – large flake size is desirable for certain end uses, but there is increasing demand for ultra-fine, highly crystalline graphites. McIntosh's thinner flake requires low energy to mill and classify down to the sub 10  $\mu\text{m}$  size specifications. This will make HXG a cost leader in milling, micronising and classifying ultra fine graphites.

# Product Development

## Graphite – a multi-staged, complex and demanding supply chain



\* Based on HXG allocation of McIntosh JV Concentrates

### Downstream test work currently underway:

#### 1. "Electrode" Line:

- Making and testing UHP electrodes with varying blends of McIntosh flake. Currently UHPs – made of synthetic graphite.
- High purity, ultra-fine lubricants
- Premium refractories used in speciality applications

#### 2. "Battery" Line

- anode material in three size specifications
- CEM materials

#### 3. Refining

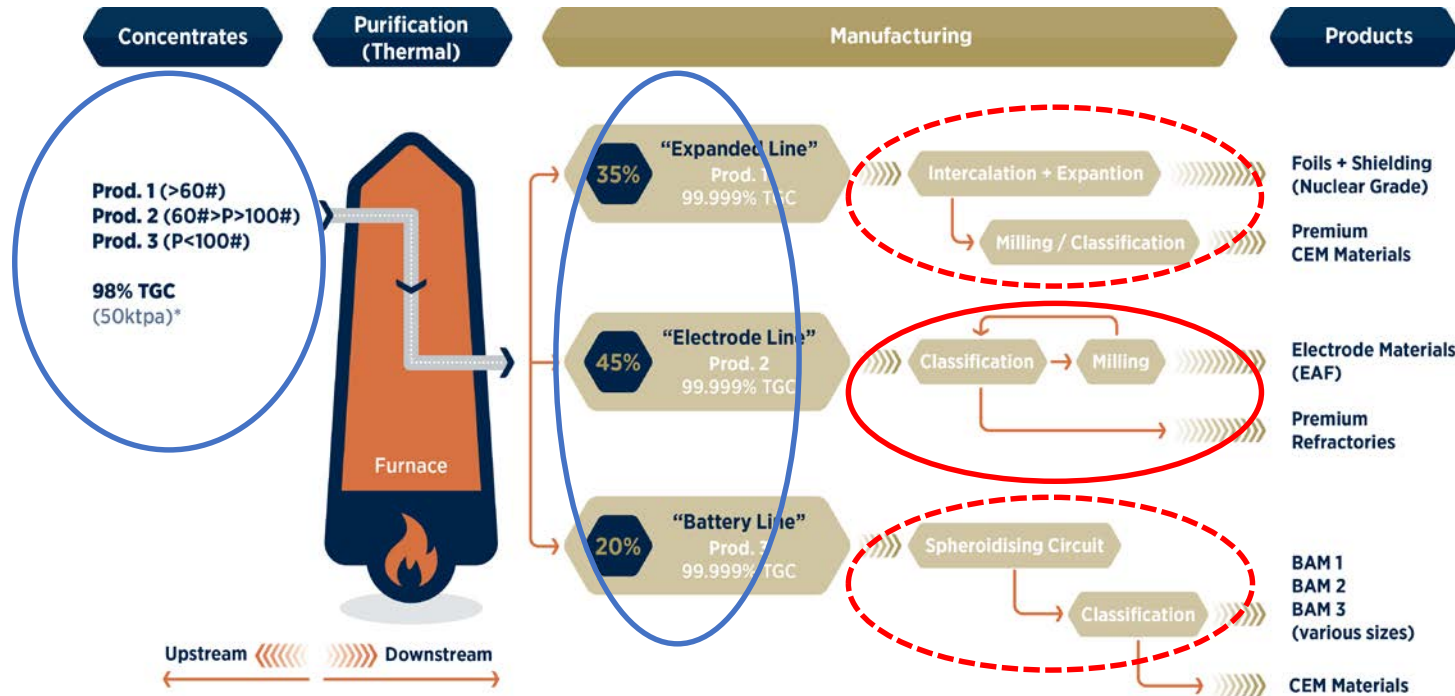
- Testing larger batches for consistent purification results, 20kg in progress
- Benchmark purification test work against other technologies

*These test outcomes generate more sample material to be qualified by end-users.*



# Product Development

## Fast track to commercialisation



\* Based on HXG allocation of McIntosh JY Concentrates

***HXG is focussed on speed to positive cash flow and profitability***

### Opportunities to fast track commercialisation:

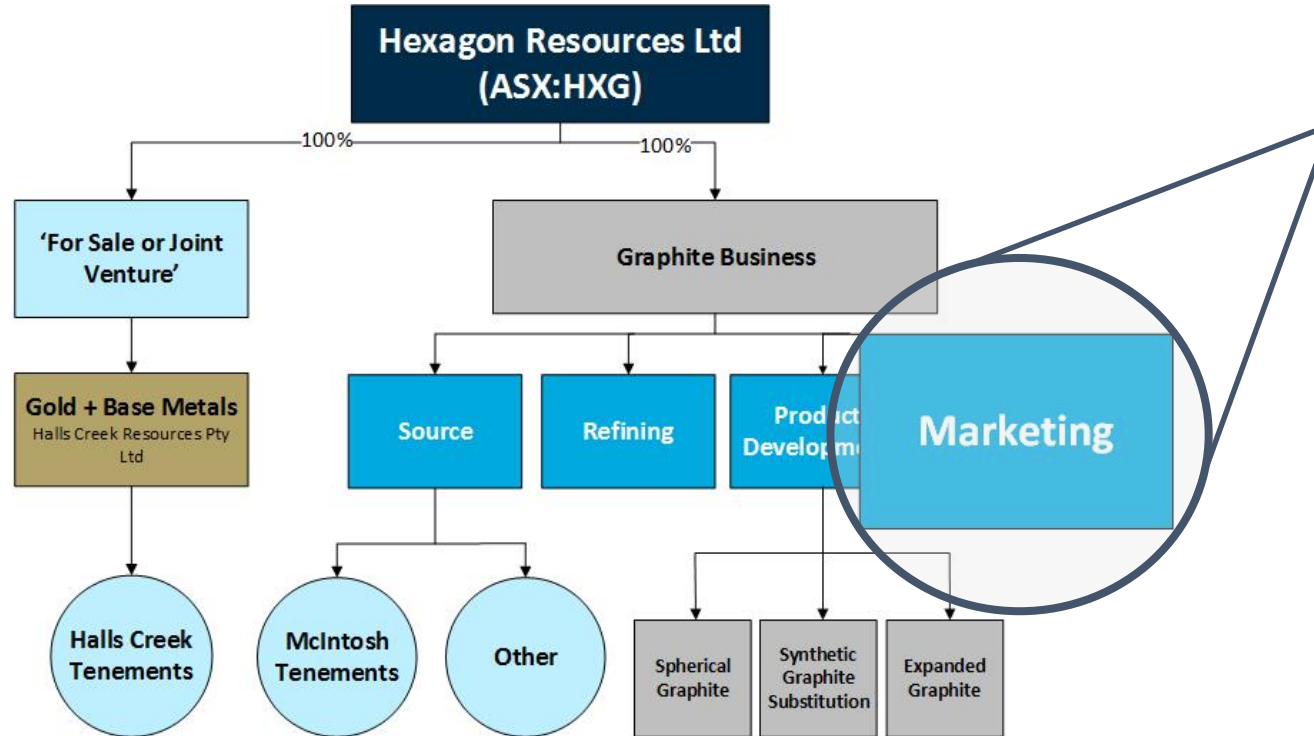
- ✓ Sell concentrates; excellent prices available for quality materials from stable jurisdictions.
- ✓ Refined, raw materials – can attract price premiums of up to 100%.
- ✓ For HXG – fastest qualification route is via classification and milling for traditional uses; the Electrodes Line - well specified and priced but currently dominated by synthetic graphite.
- ✓ Follow-through with sales of battery and expandable lines which require more flowsheet development and more stringent qualification process.

1. Sell Concentrates

2. Sell Refined Raw Material

3. Prioritise shortest qualification process (Industrials)

# Business Structure - Marketing



## Marketing

- ✓ Understand the market
- ✓ Focus products and production to meet those needs
- ✓ Design qualification and ramp-up to attain positive cash flow as fast as possible
- ✓ Ongoing work to value-add and build “premium quality” brand value.

# Marketing – based on diversity and quality



## What goes into the “pricing matrix”?

McIntosh Graphite has a unique range of technical attributes, including:

- **Purity** – ultra-high “5-9’s” achievable at a low cost.
  - **HOPG-like** – rare, highly ordered crystalline structures – suitable to displace synthetic graphite.
  - **Large flake** endowment
  - **Specific flake morphology**; rendering it easy and low cost to spheroidise and mill (*“easy” comparatively speaking*).
  - **Excellent electrochemical properties** as shown by test work and coin cell cycling tests.
- which makes it highly sought after by a diverse range of intermediate processors and End-Users.

Other important considerations for the customer include:

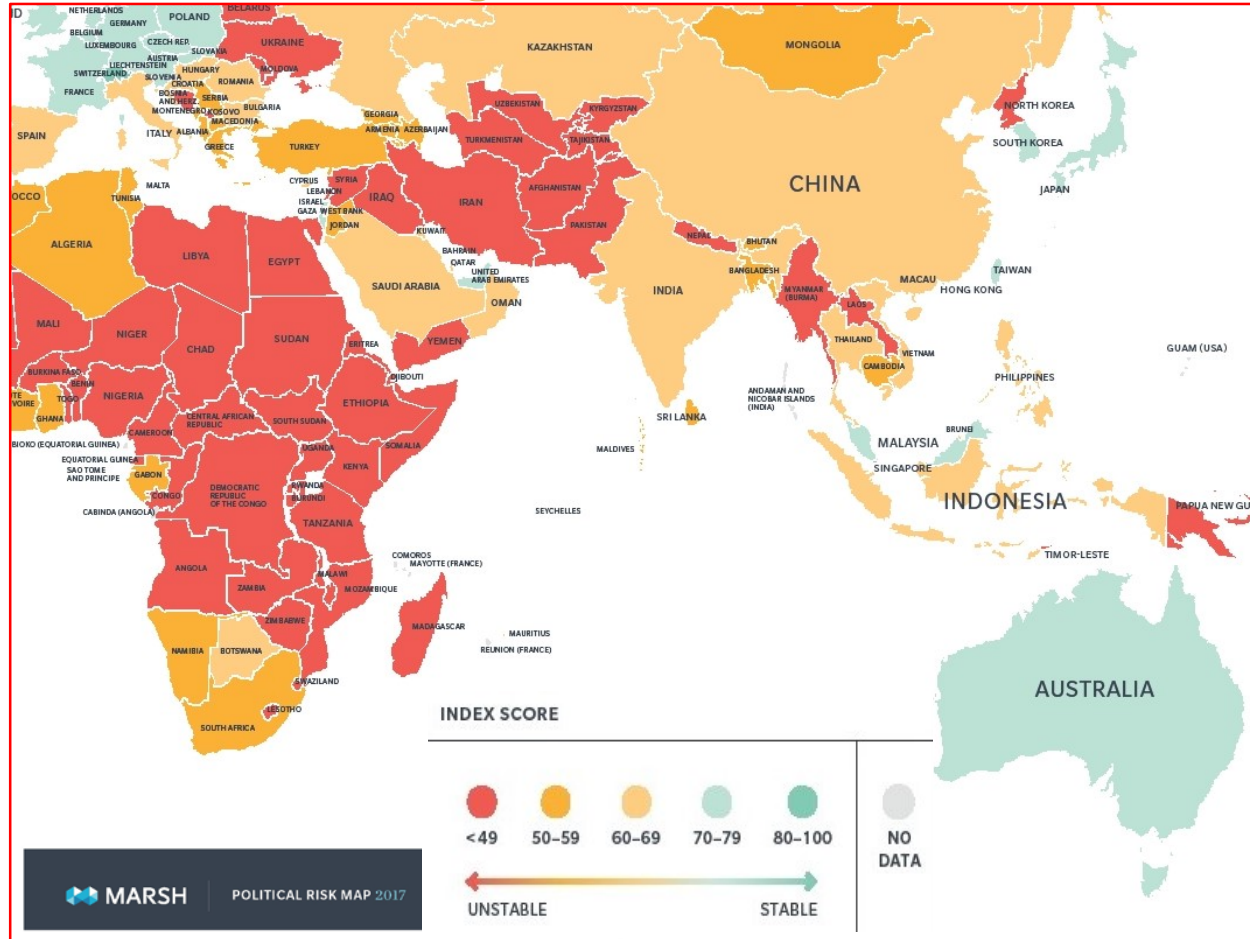
- Diversity & Scale - to create a broader product range and a more stable, long term business relationship.
- Enhanced technical performance compared to synthetic graphite.
- Environmentally sound manufacturing processes.
- Product sources from a stable jurisdiction such as Western Australia.





# Marketing advantage – reliable & reputable jurisdiction

## No issues of Sovereign or Brand Risk from Australia



**Sovereign Risk**



**Brand Risk**

# Marketing – based on diversity and quality

Graphite is not a commodity, pricing is very opaque



## HXG's estimate of Basket Price for Stage 1, 3 Product mix

Planned Product*	Size Specification (ASTM)	% of Output	HXG-97-98 % TGC \$US/t FOB	
			Lower price range	Higher price range
Product 1 (Expanded)	P > 60#	35	1867	1996
			1931	
Product 2 (Electrodes)	100# < P < 60#	45	1332	1516
			1424	
Product 3 (Battery)	P < 100#	20	880	990
			935	
Basket Price Range Assumed Price		100	1429	1579
			1504	

Based on HXG Market Inquiries; SE Asia, USA and China

*\*Subject to completion of Feasibility Study*



## Stage 1: Concentrate production (Prod. 1-3).

Note- based on May 2017 PFS\*\* outcomes:

- **Production – 49% MJV share**
  - ✓ 49,000tpa of graphite concentrates
- **Sales:**
  - ✓ Pricing – US\$1,504/t is A\$2,090/t\*
- **Costs:**
  - ✓ Unit Cost of A\$1,038/t\*\*
- **EBITDA Margin:**
  - ✓ Estimated margin of A\$1,052/t concentrate
- **Feasibility Study in progress managed by MinRes. Major opex savings expected.**
  - ✓ 2017 PFS based on different product strategy with no optimisation of mining, processing or capital costs.



This is the Upstream or Stage 1 business case only.

- \*AUD:USD=0.72
- \*\*Now superseded, with Feasibility Study in progress

# Marketing – based on diversity and quality

Some examples of the value chain HXG is pursuing in downstream processing



**TIMCAL**  
GRAPHITE & CARBON

TECHNICAL DATA SHEET

**TIMREX<sup>®</sup> KS6L**

Graphite as Conductive Additives for Lithium-ion Batteries

General Characteristics  
Formula: Carbon  
Aspect: Fine black powder  
CAS number: 7782-42-5

Standard Packaging  
-10 kg paperbags, 39 bags on one pallet (390 kg)

Guaranteed Values  
Carbon content (dry)  
Ash  
Moisture  
Crystallite Height  
Interlayer Distance  
Iron content  
D90 (Laser Malvern)

Typical Size Distribution

Typical Values

Purity		%	Crystallinity
Ash	0.01	%	Lc
Moisture	0.1	%	a/2
Al	2	ppm	Density
As	<0.5	ppm	Scott
Ca	30	ppm	Xylene
Co	<1	ppm	Specific Surface Area
Cr	<1	ppm	BET
Cu	<1	ppm	Particle Size Distribution
Fe	15	ppm	Laser Malvern
Mo	<1	ppm	D10
Ni	2	ppm	D50
Pb	<1	ppm	D90
Sb	<0.1	ppm	
Si	70	ppm	
Ti	7	ppm	
V	3	ppm	
S	20	ppm	

**IMERYS**  
Graphite & Carbon

KS 6-L

PRICES EFFECTIVE: DECEMBER 2017 - 2018

PRICE (\$ PER KG.)

1 Bag (10 KG)	\$ 17.17
1 Pallet	\$ 18.20
1 Container	\$ 15.24

IMERYS LTD. warehouse

**TIMCAL**  
GRAPHITE & CARBON

KS 6-L

PRICES EFFECTIVE: January 1, 2013

PRICE (\$ PER KG.)

QUANTITY	PRICE (\$ PER KG.)
1 Bag (10 KG)	\$ 14.63
1 Pallet	\$ 13.81
1 Container	\$ 12.99

TERMS:

- Most orders shipped within 24 hours
- Shipped F.O.B., Freight Collect from the closest TIMCAL LTD. warehouse
- Payment Terms are Net 30 Days

c.20% increase in 5 years

## Pricing – Final Products

### • Examples from IMERYS\*:

- KSL6 c.US\$16.2/kg CEM, synthetic graphite
- KS15 c.US\$9.6/kg CEM, synthetic graphite
- BNB90 c.US\$19/kg Expanded graphite – CEM, natural graphite
- KS44 c.US\$6.6/kg CEM, synthetic graphite
- KS4 c.US\$19.4/kg CEM, synthetic

- HXG is aiming to participate along these types of value chains where there are established and deep markets.
- **Scoping Study underway** to provide technical and financial data to build business case.

\*Imerys S.A. is a French multinational company which specialises in the production and processing of industrial minerals. It owns Imerys Graphite & Carbon a world leader in high-tech, high performance specialised graphite and carbons sold under its brands, such as TIMREX, ENSACO, SUPER P.



# News – ongoing news charting the commercialisation path



## “Upstream” MJV (Mineral Resources - Manager)

- Ongoing – with drill results, resource updates, flowsheets, Opex and CapEx outcomes – based on recently completed drill program.

## “Downstream” 100% HXG Focus & NAM Labs (USA)

- Pilot Furnace agreement with US based technical partner. Q4-2018
- Test work results for specific end-use applications e.g. UHP Electrodes. Q4-2018 onwards.
- Off-takes / Marketing Agreements – ongoing, inline with above test work

**Targets**

2018	2019				2020				2021				2022								
Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4					
UpStream - Concentrate Production from McIntosh JV (HXG 49%)- Time frames as per JV Agreement									<div>Concentrate Production</div>												
Feasibility Study (MJV) Project																					
				Decision to Mine																	
					Build + Commercial Production					<div>Concentrate Sales</div>											
Concentrate Marketing (HXG 49% JV allocation)																					
Concentrate Qualification with Customers																					
									Concentrate Sales												
Downstream - Various Refined Graphite Products (HXG 100%). Time frames are prelim. Targets									<div>Serious Customer Engagement</div>												
D/stream Scoping Study																					
Downstream Feasibility Study																					
Refining Capacity + Downstream Lines									<div>Refining pilot work</div>												
					Pilot Scale 30kg/h																
					Qualification/Prototype Scale 100kg/h																
									Commercial Scale 1000kg/h												
Sales									<div>Commercial scale production</div>												
					Qualification with Customers																
					Various refined intermediate products																

# Highlights



## Low-risk strategy, fully funded graphite source and quality downstream products

- ✓ McIntosh is a high purity, natural crystalline flake graphite resource
- ✓ Stage 1 project to produce c. 100ktpa of graphite concentrates for a diverse range of premium priced end uses
- ✓ Stage 1 Project – fully funded to Commercial Production with MinRes earning 51% project interest (subject to positive Feasibility Study)
- ✓ Exceptional downstream processing attributes and cost profile making it a highly sought after material by intermediate processors – *“easy means Low Cost and High Yield”*
- ✓ Major downstream test work program and feasibility study underway and ongoing; focussed on:
  - Refining - pilot furnace, transitioning to semi-commercial Prototype Furnace
  - Product development & qualification across Electrode Line, Expanded and Battery materials
- ✓ Experienced management team - with specific graphite, project development, marketing and financing experience and leveraging strategic technical partnership with leading US graphite processing and battery group.
- ✓ On-Track to become a global-scale, vertically integrated graphite business.

# Important Notices



## Competent Persons' Attributions

### ***Exploration Results and Mineral Resource Estimates***

The information within this report that relates to exploration results, Exploration Target estimates, geological data and Mineral Resources at the McIntosh Project is based on information compiled by Mr Mike Rosenstreich who is an employee of the Company. Mr Rosenstreich is a Fellow of The Australasian Institute of Mining and Metallurgy. He has 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 as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves and he consents to the inclusion of this information in the form and context in which it appears in this report.

Hexagon Resources Limited confirms that it is not aware of any new information or data that materially affects the Mineral Resource information included in the market announcement dated 27 April, 2017 and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

### ***Metallurgical Test Work Outcomes***

The information within this report that relates to metallurgical test work outcomes and processing of the McIntosh material is based on information provided by a series of independent laboratories. Mr Rosenstreich (referred to above) managed and compiled the test work outcomes reported in this announcement. A highly qualified and experienced researcher at NAm labs planned, supervised and interpreted the results of the test work. Mr Michael Chan also reviewed the metallurgical test work outcomes. Mr Chan is a Metallurgical Engineer and a Member of the Australasian Institute of Mining and Metallurgy. Mr Chan and the NAmLab principals have sufficient relevant experience relevant to the style of mineralisation and types of test-work 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 have consented to the inclusion of this information in the form and context in which it appears in this report.

### ***Technical Detail - references to Hexagon Website and recent ASX Reports***

This Report aims to provide a high level summary of various technical aspects of the Company's projects. For more details on the underlying technical parameters the reader is referred to the ASX Reports on the Hexagon Resources Limited website, [www.hexagonresources.com](http://www.hexagonresources.com), in particular: May 31, 2017 on PFS Results, August 16, 2017 on Battery Test Work, November 6, 2017 on Large Flake endowment, November 23, 2017 on Expandability test work, Purification test work on January 16, 2018, Crystallinity determinations on March 6, 2018, Spheroidisation Test Yields on 21 June, 2018, and Cell Cycling results on 17 July, 2018; which contain the full JORC Tables on reporting of test work results.

### ***Forward-Looking Statements***

This document includes forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Hexagon Resources Limited's planned development and exploration programmes and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may," "potential," "should," and similar expressions are forward-looking statements. Although Hexagon Resources Ltd believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements.



# Attachment 1: A global market context for HXG products



## Key Facts

- **Scale** – 2.44mtpa of graphite produced globally in 2017\*:
  - 1.55 mtpa of synthetic graphite; and
  - 0.90 mtpa of natural (mined) graphite.
  - 76% of all graphite is from China
- **Natural graphite market** comprises:
  - 0.59 mtpa flake (66%)
  - 0.30 mtpa amorphous (34%)
  - .01 mtpa vein-flake (<1%)
- **Natural graphite sources** by country:
  - China – 0.63 mtpa (44% flake & 56% amorphous. Flake now almost entirely fine and small sized flake.)
  - Brazil – 0.01mtpa, followed by India, Canada and Ukraine
- **Synthetic graphite**:
  - precursor material is a by product from petroleum refining (PetCoke + other varieties)
  - produced by “graphitisation process” – involves heating in an Acheson Furnace for 3 weeks at 2,500 to 2,800<sup>o</sup>C; Synthetic graphite quality is related to time, temperature and feedstock.

\* Roskill; Natural & Synthetic Graphite Report 2018.



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Source:

\* Various including, NAmLabs, Benchmark Minerals & 2017 figures from Roskill

# Attachment 1(Cont.): A global market context for HXG products

## Market Drivers – EV's & ESS as well as EAF electrodes and pollution control in China

- **Natural flake graphite** is already flaky and crystalline; “graphitisation” has already occurred over the course of millions of years under the influence of temperature and pressure in the Earth’s crust.
- **Synthetic graphite** is expensive but of a consistent quality which is critical for high end applications such as batteries and electrodes:
  - Batteries - 0.4 to 0.5mtpa of graphite goes into batteries, mainly anodes. Natural graphite comprises between 30 to 50% of this and synthetic graphite the balance.
  - Electrodes – 1.1 mtpa of synthetic graphite is used for electrodes in electric arc furnaces (EAF),
- **Major growth opportunity for HXG in batteries and electrodes:**
  - Batteries – Forecast growth rate of between 20 - 30% pa based on EV & ESS
  - Electrodes – Forecast\* growth rate of 16-18% pa in steel production
    - China accounts for 50% of world steel production. 30% of world steel production is made using EAF, but only 6% of steel in China is made by EAF.
    - Chinese Govt is closing high-polluting Blast & Induction steel furnaces to be replaced by EAF – which requires Electrodes

***HXG is testing its graphite in electrodes and is in early discussions with industry groups to assess further.  
Also well leveraged to strong battery demand growth, LiB and other battery chemistries.***

\* Roskill; Natural & Synthetic Graphite Report 2018.

# Attachment 2: Mineral Resource Detail

McIntosh Flake Graphite Project Mineral Resource as at May 2017 reported by deposit and above a 3% TGC cut-off grade.

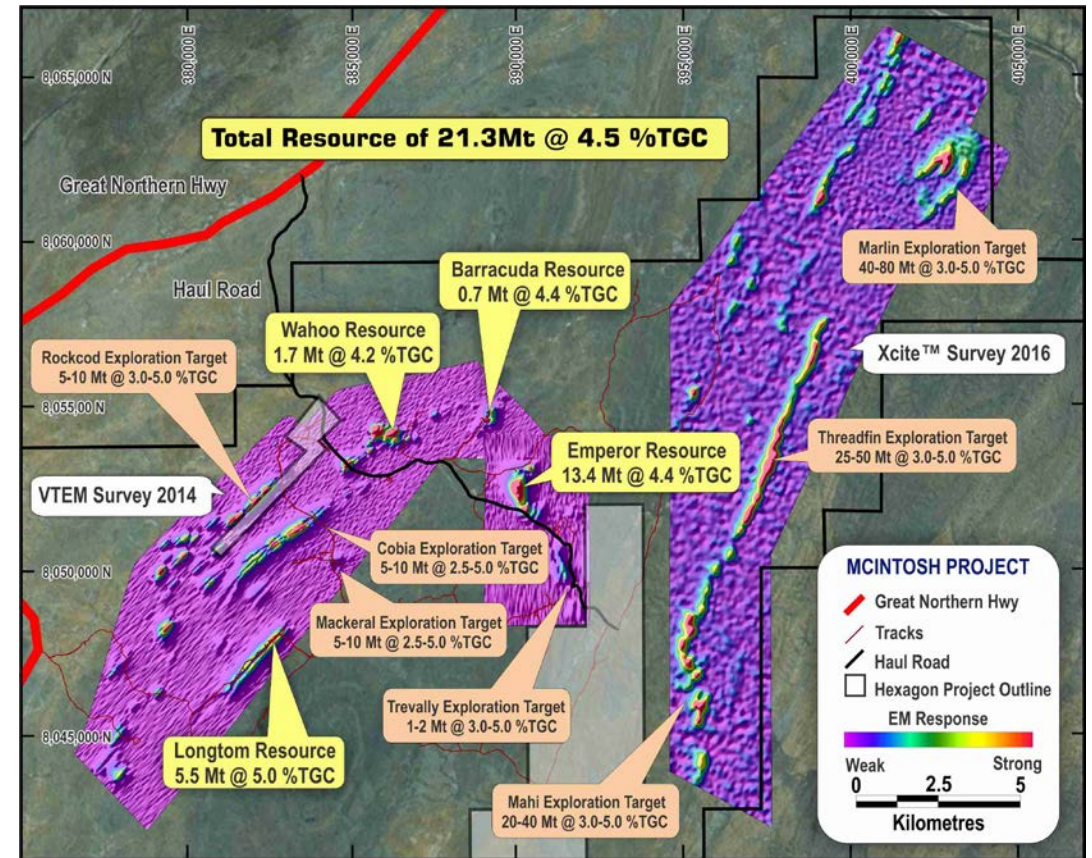
As per ASX Report dated 25 April, 2017

Deposit	JORC Classification	Material Type	Tonnes (Mt)	TGC %	Contained Graphite (Kt)
Emperor	Indicated	Oxide	-	-	-
		Primary	8.2	4.3	352
	Inferred	Oxide	-	-	-
		Primary	5.3	4.5	235
	<b>Indicated + Inferred</b>	<b>Oxide + Primary</b>	<b>13.4</b>	<b>4.5</b>	<b>587</b>
Longtom	Indicated	Oxide	0.7	4.7	34.2
		Primary	3.5	5.0	173.4
	Inferred	Oxide	-	-	-
		Primary	1.3	5.2	66.9
	<b>Indicated + Inferred</b>	<b>Oxide + Primary</b>	<b>5.5</b>	<b>5.0</b>	<b>274.3</b>
Wahoo	Indicated	Oxide	0.1	4.2	3.5
		Primary	1.1	4.2	44.3
	Inferred	Oxide	0.1	4.1	3.4
		Primary	0.5	4.2	22.4
	<b>Indicated + Inferred</b>	<b>Oxide + Primary</b>	<b>1.7</b>	<b>4.2</b>	<b>70.1</b>
Barracuda	Inferred	Oxide	0.2	4.5	11.1
		Primary	0.5	4.4	21.1
	<b>Inferred</b>	<b>Oxide + Primary</b>	<b>0.7</b>	<b>4.4</b>	<b>32.2</b>
<b>Total</b>	<b>Indicated + Inferred</b>	<b>Oxide + Primary</b>	<b>21.3</b>	<b>4.5</b>	<b>963.6</b>

Note: Rounding may result in differences in totals for tonnage and grade

Location Plan – McIntosh Mineral Resources (in yellow). Also shown are Exploration Targets\* (in brown) as reported to ASX 12 April, 2017.

Background is EM conductors from VTEM and Xcite surveys.



**\*Cautionary Statement:** The potential quantity and grade of the Exploration Targets is conceptual in nature, there has been insufficient exploration work to estimate a mineral resource and it is uncertain if further exploration will result in defining a mineral resource.





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