KIBARAN RESOURCES LIMITED

ASX: KNL
FSE: FMK

BUILDING A SUSTAINABLE ECO-FRIENDLY GLOBAL GRAPHITE BUSINESS

EcoGraf Kwinana Development

September 2019

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Information in this presentation that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Andrew Spinks, who is a Member of the Australasian Institute of Mining and Metallurgy included in a list promulgated by the ASX from time to time. Andrew Spinks is a director of Kibaran Resources Limited and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking 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”. Andrew Spinks consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.

Information in this presentation that relates to Mineral Resources is based on information compiled by Mr David Williams, a Competent Person, who is a Member of the Australasian Institute of Mining and Metallurgy. David Williams is employed by CSA Global Pty Ltd, an independent consulting company and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking 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”. David Williams consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.

Information in this presentation that relates to Ore Reserves has been compiled by Mr Steve O'Grady, who is a Member of the Australasian Institute of Mining and Metallurgy. Steve O’Grady is a full time employee of Intermine Engineering and produced the Mining Reserve estimate based on data and geological information supplied by Mr Williams. Mr O'Grady has sufficient experience which is relevant to the estimation, assessment, evaluation and economic extraction of the Ore Reserve that he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves”. Steve O'Grady consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.

VERTICALLY INTEGRATED BUSINESSES FOR MANUFACTURE OF BATTERY GRAPHITE FOR THE LITHIUM-ION MARKET

EcoGraf

TANZGraphite

Manufacturing of battery (spherical) graphite for lithium-ion batteries	Scalable mining projects for long term supply of graphite products
Australia / Asia / Europe	Epanko Graphite Project Debt Financing Advanced

Total pre-tax NPV_{10} US$546m and EBITDA US$121.5m

(geared, nominal terms)

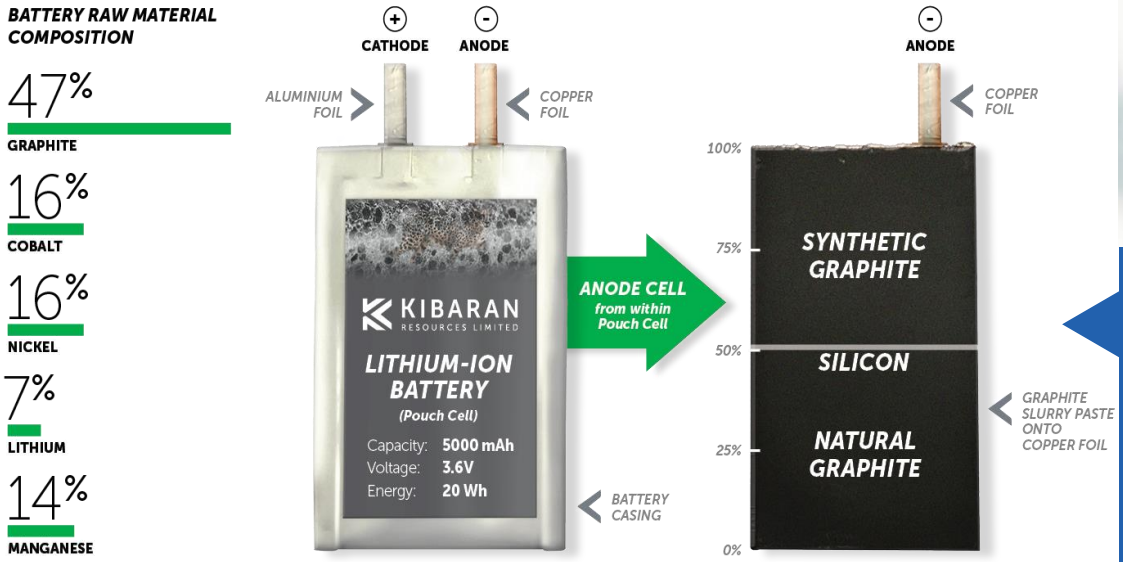
Shares on issue	Key holders	Financial
Listed 293m F-diluted 295m	Mitsubishi UFJ Group 12.5% JP Morgan Nominees 11.8% Board 10%	Cash (1 Jul) – $1.45m Share Price – 10.5c Mkt Cap - A$30.8m

Strong mix of graphite expertise, commercial and project development

- Kibaran Chairman Robert Pett, Managing Director Andrew Spinks and Project Director Grant Pierce OAM established Tanzania's Golden Pride Mine which was the recipient of the President's Award in Tanzania for environmental excellence
- German-based non-executive director Christoph Frey (ProGraphite) is a globally recognised graphite expert.
- Howard Rae, CFO has over 20 years' experience in project financing
- Listed on the Australian and German (Frankfurt) stock exchanges

BATTERY MARKET OPPORTUNITY: ELECTRIC VEHICLES

Global expansion of electric vehicle markets reliant on battery graphite and natural graphite feedstock



27kg

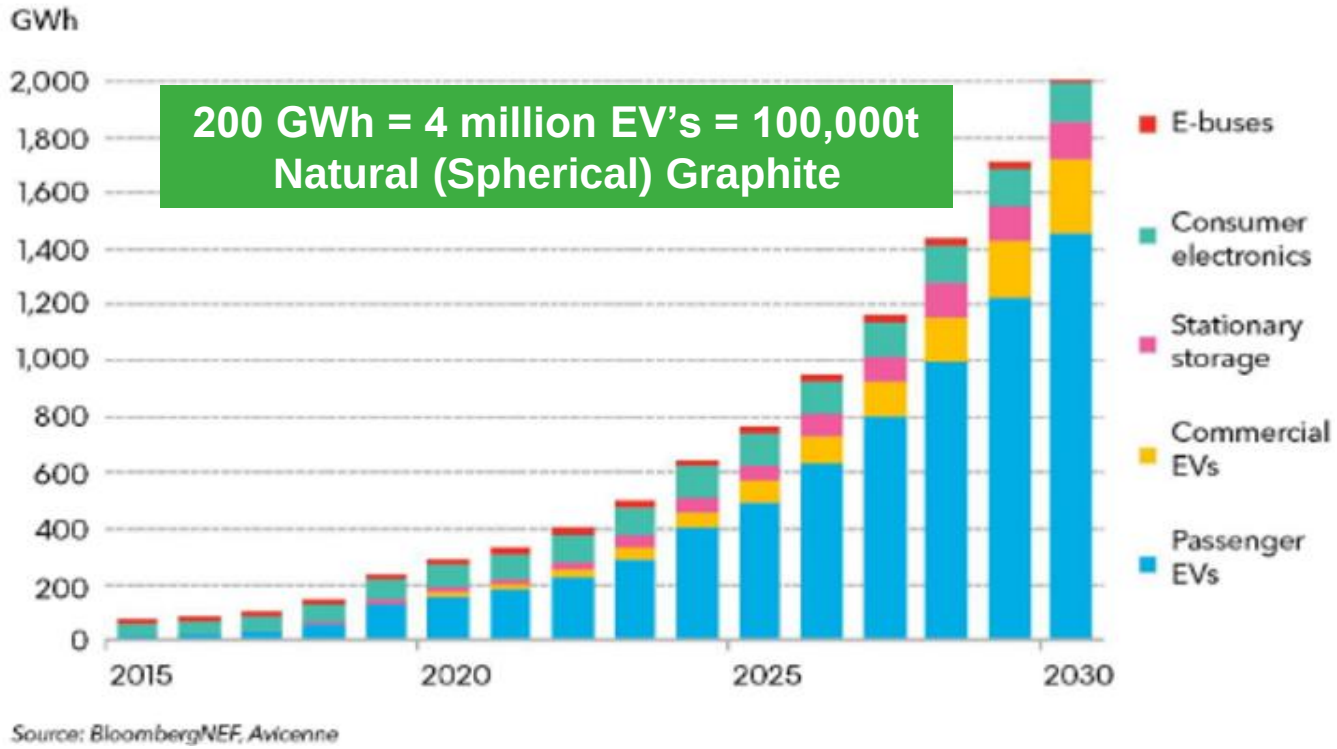
Natural (Spherical) Graphite per EV

- 54kg of natural graphite feedstock is required to manufacture 27kg of natural (spherical) graphite
- Natural (spherical) graphite used in battery anode is currently only sourced from China

Battery graphite is manufactured from natural flake graphite into a 99.95% high purity product suitable for anode manufacturing

BATTERY GRAPHITE DEMAND

Global expansion of electric vehicle markets forecast to drive a 700% increase in annual natural spherical graphite demand by 2025 *Roskill*



Bloomberg New Energy 2019 reported that on current plans, total battery cell production capacity will exceed 1,000 GWh by 2025.

EcoGraf GERMAN LED EUROPEAN BATTERY ALLIANCE

Major investment underway in battery manufacturing for Electric Vehicles

Source: Reuters, Bloomberg New Energy and Benchmark Minerals

- **Currently all German EV's are reliant on Asian battery anode cells**
- **German Government announced support for 3 new battery alliances**
  - 1 billion euros to preserve the automotive value chain in Germany and Europe
  - Finance minister stated, *"Germany and Europe need to develop and build competitive, innovative and environmentally sustainable battery cells."*
- **Raw materials shift into Europe expected from 2023**

EcoGraf BATTERY GRAPHITE BUSINESS SUMMARY

MANUFACTURE OF BATTERY GRAPHITE – KWINANA, WA

Business Description

Production of spherical graphite in Western Australia using a new eco-friendly process to sell directly to lithium-ion battery manufacturers
Initially supplying existing Asia markets, thereafter expanding to meet new European growth

Status/Achievements

- ✓ New eco-friendly process developed and trade marked EcoGraf
- ✓ Feasibility study to produce Battery Spherical Graphite completed GR Engineering in December 2017
- ✓ 2 years of Pilot testwork completed in Germany to produce commercial product
  - ✓ Process optimisation completed
  - ✓ Engineering design completed
  - ✓ Optimised flowsheet derisks process
  - ✓ Engineering design and costing completed for Kwinana, Western Australia and Asia
- ✓ Global patent pending over unique eco-friendly purification processing technology
- ✓ EcoGraf product fully tested and endorsed as meeting stringent operating specifications
- ✓ Agreement in place for supply of suitable feedstock based on successful testwork
- ✓ Over 80 product samples distributed to battery anode manufacturers in South Korea, Japan, China, North America and Germany
- ✓ Debt and equity financing discussions underway
- ✓ Offtake support underpins project financing

Production Scale

Staged production facility at Kwinana to commence at 5,000tpa, quickly expanding to 20,000tpa

Manufacturing Facility Economics

	CAPITAL		FINANCIAL RETURNS FOR 20,000TPA			
	5,000tpa	**15,000tpa**	**NPV_{10}**	**EBITDA**	**IRR**	**Payback**
Kwinana, WA	US$22.8m	US$49.2m	US$141m	US$35m	37.0%	~4yrs

EcoGraf MANUFACTURING PROCESS

Process flowsheet and planned scale-up de-risked through process optimisation, engineering, off the shelf equipment, extensive product qualification and endorsement of customers for eco-friendly products.

Agreements in place to secure feedstock

- 100 mesh @ 94-95%C natural flake graphite

Produced through crushing, grinding and flotation, with agreements in place to secure supply

Off the shelf equipment in use in China

Mechanical grinding and shaping

Micronising and spheronising using standard milling equipment

- ✓ **50% fines bi-product for sales into various markets**
- ✓ **Ability to purify fines for sales into higher value market**

International patent pending for chemical purification process

Multi-stage chemical purification, washing and filtration process (eliminates HF and is non toxic)

EcoGraf

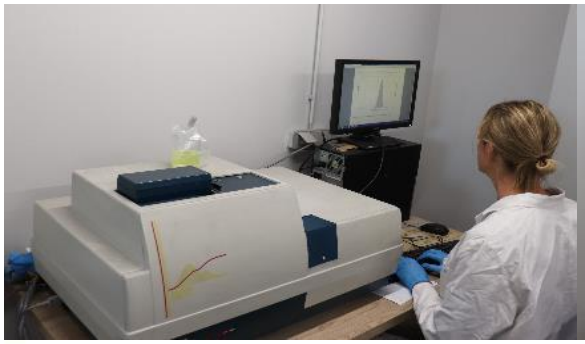
- ✓ **Eco-friendly**
- ✓ **Cost effective**
- ✓ **Lowest cost quartile**
- ✓ **Supply diversity**

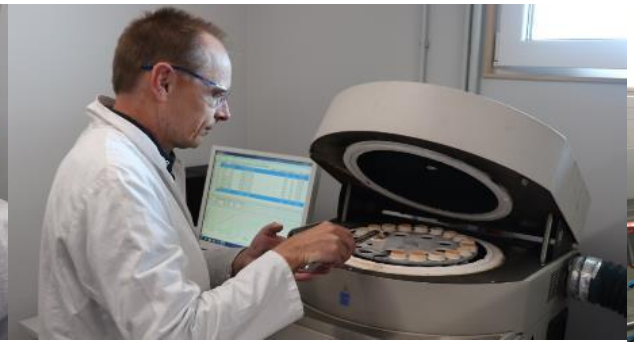
Purified battery (spherical) graphite for sale into lithium-ion battery market

DEVELOPMENT HISTORY

Over 3 years of intensive testwork and process design to develop a new eco-friendly chemical process that provides a cost competitive alternative to existing Chinese supplies

- Testwork performed in Australia and Germany conducting >100 trials using a systematic, scientific method to optimise the purification process with R&D support from Australian Government
- Evaluation of all leading micronising and spheronising equipment, resulting in improved yields at 45-55%
- Extensive product testing by potential partners and customers in Asia and Europe confirms attractiveness of EcoGraf SPG products as a high quality and cost effective alternative to existing Chinese supply
- EcoGraf effectiveness demonstrated through successful application to 10 existing sources of natural flake graphite from Europe, Africa, Asia and the America's
- EcoGraf process suitable for purification of fines bi-products, providing options to generate additional revenues from high purity fine graphite products
- Engineering and feasibility work on Kwinana location





PRODUCT QUALIFICATION

Over 80 graphite product samples, including various grades of spherical graphite, tested successfully by battery anode manufacturers in South Korea and Japan

- ✓ *Battery graphite samples (SpG14.5, 15 and 20) tested by battery anode manufacturers*
- ✓ *Testing confirms EcoGraf product meets all battery anode manufacturers' specifications*

PRODUCT SAMPLE SPECIFICATION (SPG15)

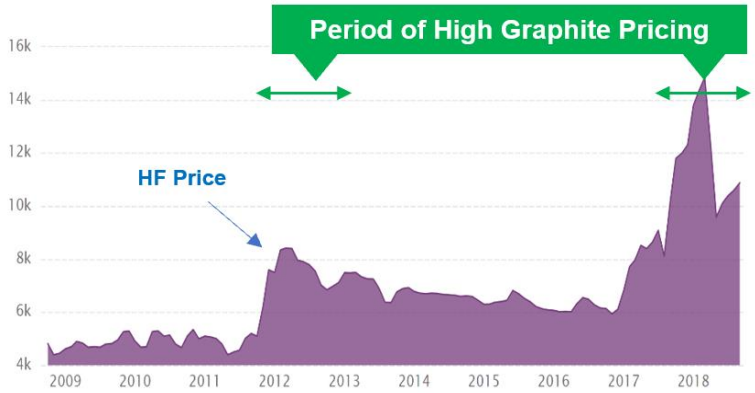
Particle Size		
d10	micron	10.3
d50	micron	15
d90	micron	22.1
Tap density	kg/l	0.98
Surface Area (SSA)	m^2/g	7.4

Carbon	%	99.98
Impurities		
Al	ppm	2.7
Ca	ppm	4.6
Fe	ppm	5.5
Mg	ppm	0.5
S	ppm	5
Si	ppm	15.4
Zr	ppm	0.5

EcoGraf ECO-FRIENDLY AND COST COMPETITIVE ALTERNATIVE TO CHINESE SUPPLY

- All battery graphite is presently produced in China using hydrofluoric (HF) acid to achieve 99.95%C with Hubei and Shandong the largest producing areas and increasingly subject to environmental regulation
- HF is a major contributor to the cost of Chinese battery graphite production in both input cost and management of fluorine enriched waste residues
- EcoGraf non-HF method is both cost competitive and eco-friendly compared to Chinese supply

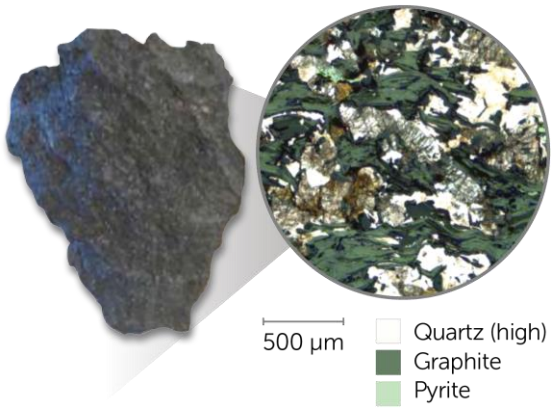
Source: Industrial Minerals



China HF Price (RMB)

Chinese graphite ore with high quartz (silica) content of 40% (SiO_2).

HF is the only acid that will digest high silica remaining in the graphite concentrates.



HIGHER PRICES FOR SPHERICAL GRAPHITE

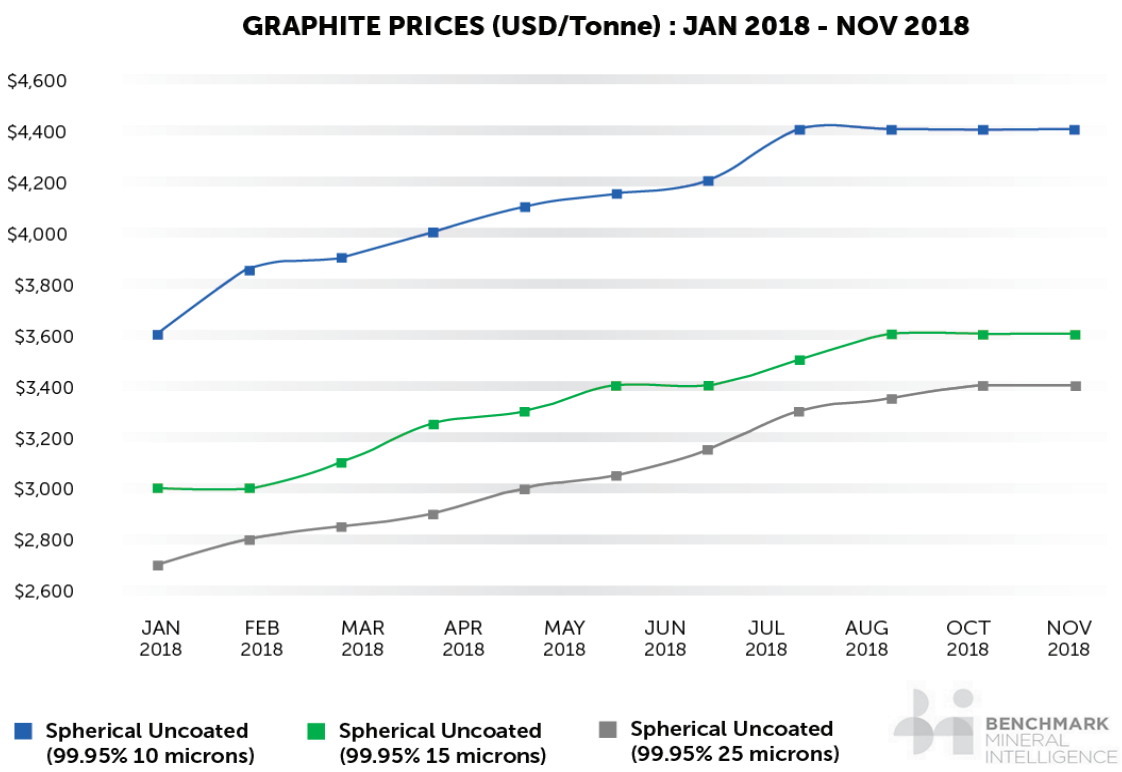
2018 Chinese demand increased 40% and Rest of World demand to exceed 100,000 tonnes by 2020

Latest News:

- Prices increased 20% during 2018 for Spherical Graphite (SPG)
- Benchmark Minerals has reported SPG exports from China up 16% from Jan-July 19, with coated SPG up over 200%

Further price increases:

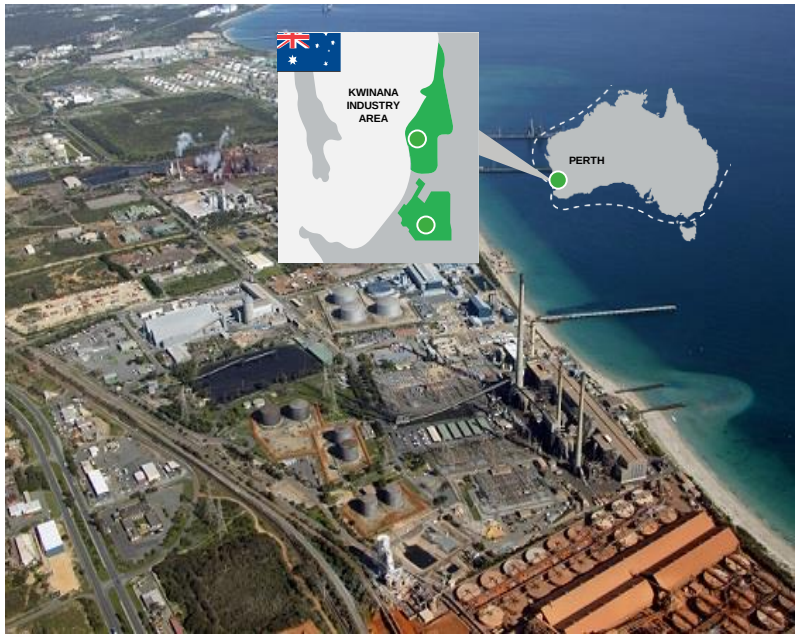
- Restriction in Chinese supply due to increasing environmental pressure with fluorine residues
- Limited availability of high-quality battery grade graphite to satisfy customer requirement



EcoGraf KWINANA FACILITY

Graphite feedstock will be procured and processed at the Kwinana facility and exported to lithium-ion battery manufacturers in Asia, Europe and the US

- Awarded ‘‘Lead Agency Support’ and in process of being offered a 6.7ha industrial site within Kwinana Industrial Area (KIA)
- Pre-development activities, including engineering, permitting and environmental approvals commenced
- Final Investment Decision (FID) in the first half of 2020

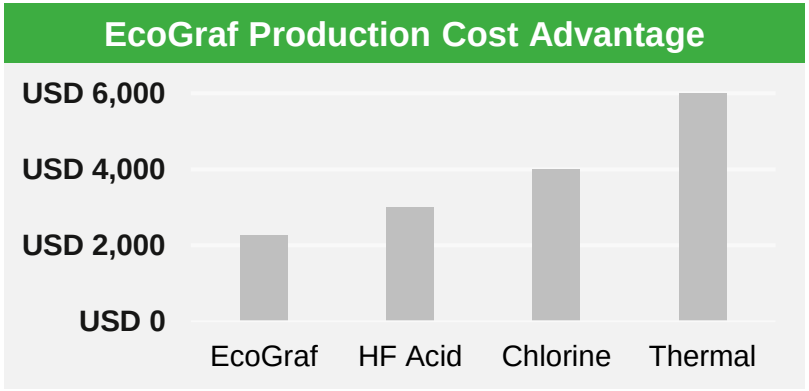


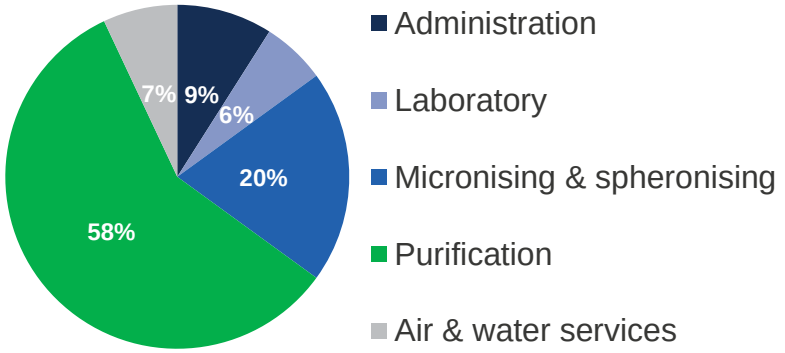
Key Benefits

- Geographic risk - Australia’s reputation as a reliable supplier of high-quality industrial products
- Location/Infrastructure - KIA emerging as a global hub for value added processing of battery materials
- Logistics - KIA has direct port access
- Ethical transparency in raw material production supply chains
- Protection of intellectual property rights for additional downstream processing activities

KWINANA CAPITAL AND OPERATING COSTS

	Phase 1	Phase 2
CAPITAL	**5,000TPA**	**15,000TPA Expansion**
Direct costs	$18.6m	$41.2m
EPC	$2.7m	$5.6m
Commissioning	$0.2m	$0.4m
Other	$1.3m	$2.0m
Total	**US$22.8m**	**US$49.2m**
OPERATING		**20,000tpa**
EBITDA pa		US$35m
Production		5.5tph
Total cost per SPG tonne		**US$2,275**





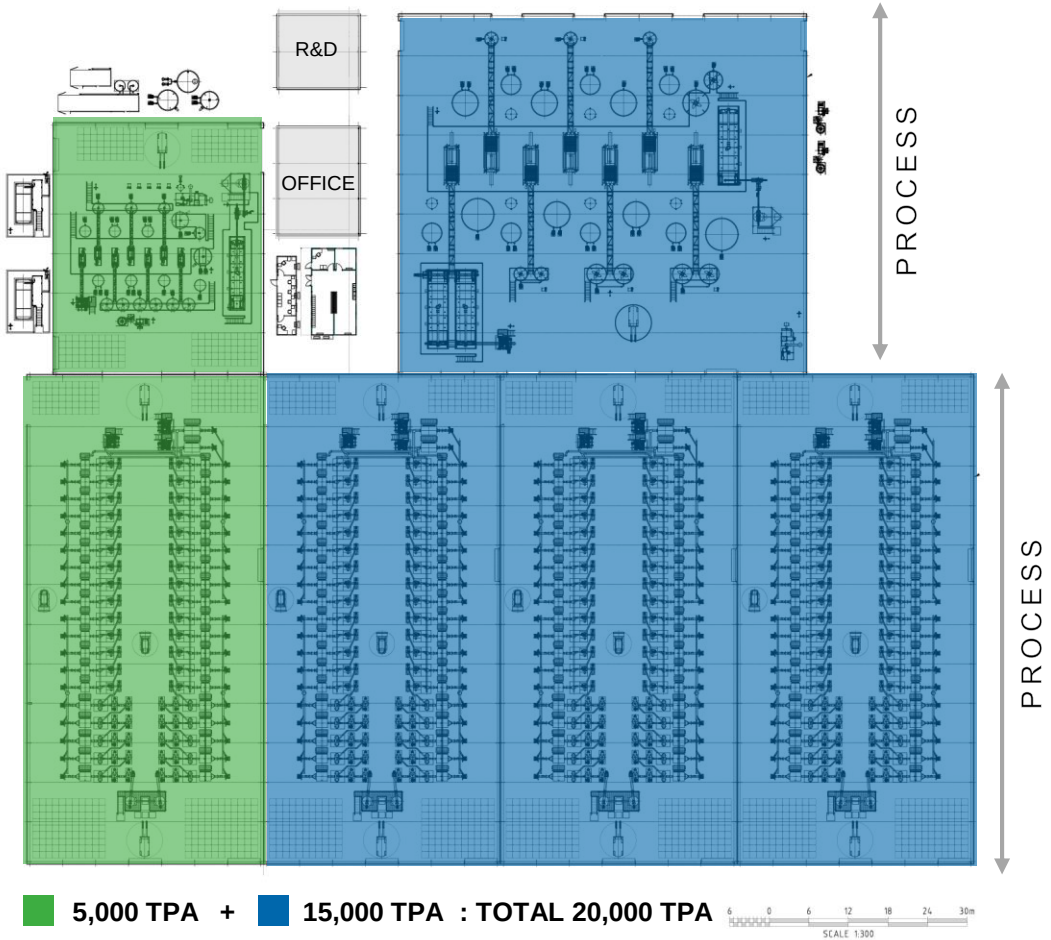
KWINANA PHYSICAL DATA

Staged expansion to 20,000tpa

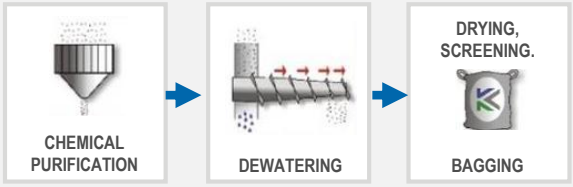
	5,000TPA PLANT	15,000TPA EXPANSION
Micronising and spheronising throughput	10,960tpa	32,870tpa
Number of production trains	2	6
Purification throughput	5,480tpa	16,430tpa
Availability	75%	
Annual operating hours	6,570hrs	6,570hrs
Target SpG production	5,000tpa	15,000tpa
Micronising and spheronising yield	50%	
Purification product yield	92%	
Purification plant design capacity	830kg/hr	2,500kg/hr
Micronising and spheronising design capacity (per train)	830kg/hr	

PLANT LAYOUT

Staged expansion from 5,000tpa to 20,000tpa - flexibility with modular design



Purification



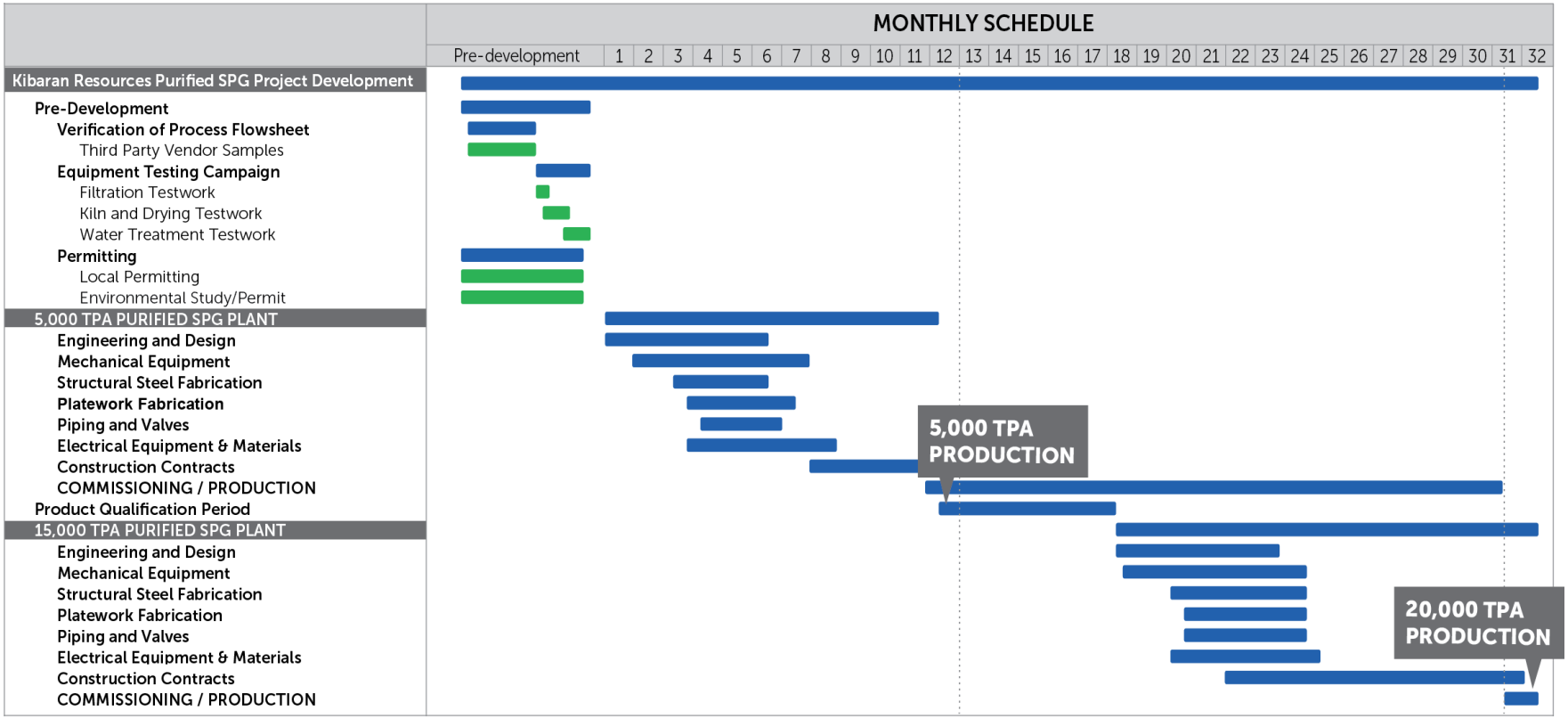
Micronising and spheronising

KWINANA PLANT LOCATION

Ideally situated for transport of product to and from Fremantle Container Terminal and direct access to reagent suppliers, infrastructure services and highly skilled labour

DEVELOPMENT AND CONSTRUCTION

Short 11-month construction period to first production



FINAL INVESTMENT DECISION 1H 2020

Multiple programs in progress to enable construction to commence in 2020

- Debt and equity funding processes commenced with Government funds mandated to support new environmentally friendly energy technologies in Australia
- Funding support underpinned by extensive process development in Australia and Germany, customer validation testwork and forecast strong economic returns
- Construction, operations and maintenance arrangements under negotiation with engineering firms
- Offtake support received following successful product qualification testing in Asia and Europe
- On-going discussions with anode and battery manufacturers to secure sales commitments
- Negotiations with Government for land access and tenure well advanced
- Preparation of environmental and development plans on schedule for submission in Q4 2019

- Final Investment Decision expected 1H 2020

FLAKE GRAPHITE BUSINESS SUMMARY

EPANKO GRAPHITE PROJECT	
Description	Natural flake graphite project
Location	Epanko Valley, Mahenge, Ulanga District, Morogoro Region, Southern Tanzania
Status – ready to construct	Bankable Feasibility Study completed June 2017 Independent Engineer's Due Diligence via KfW and SRK completed August 2017 Debt financing with German and Australian lenders
Social and environmental planning	Completed to Equator Principles standards and achieved: • International Finance Corporation Performance Standards • World Bank Group Environmental, Health & Safety Guidelines
Production	Stage 1 is 60,000 tonnes per year of natural flake graphite Scalable development model enables rapid expansion to meet market demand
Construction cost	Stage 1: US$89 million
Strong economic returns	US$44.5m pa EBITDA // 38.9% IRR // 3.5yr payback // US$211m pre-tax NPV_{10}
Committed sales and offtake with major international customers	Thyssen Krupp (Germany) and Sojitz Corporation Offtake agreements in place for Stage 1

BUILDING A SUSTAINABLE GLOBAL GRAPHITE BUSINESS

DOWNSTREAM BUSINESS

BATTERY GRAPHITE FACILITY

Spherical Graphite (SPG)
(F) Fines
(UN) Unpurified
(P) Purified

	KWINANA	ASIA
Production	20ktpa	20ktpa
NPV_{10}	US$141m	US$194m
EBITDA	US$35m	US$42m

- ❑ Strategic partnerships
- ❑ Offtake
- ❑ Financing

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UPSTREAM BUSINESS

EPANKO GRAPHITE PROJECT

Natural
Flake
Graphite
(NfG)

Production	60ktpa
NPV_{10}	US$211m
EBITDA	US$44.5m

- ❑ Project financing

TANZGraphite

Total pre-tax NPV_{10} US$546m/(A$780m) and EBITDA US$121.5m/(A$174m)
(geared, nominal terms)

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THANK YOU