



19-20 May 2021
Perth, Western Australia

Mining & Energy Investment (Australia – Europe)

Critical Resources Strategy & Supply Presentation

ASX: EGR FSE: FMK OTCQX: ECGFF

ENGINEERING CLEAN ENERGY

Disclaimer



Securities Disclaimer

This presentation is for informational purposes only and does not constitute an offer to sell, or solicit to purchase, any securities. Such offer can be made only through proper subscription documentation and only to investors meeting strict suitability requirements. Any failure to comply with these restrictions may constitute a violation of applicable securities laws.

Forward looking statements

Various statements in this document constitute statements relating to intentions, future acts and events. Such statements are generally classified as “forward looking statements” and involve known and unknown risks, uncertainties and other important factors that could cause those future acts, events and circumstances to differ materially from what is presented or implicitly portrayed herein. The Company gives no assurances that the anticipated results, performance or achievements expressed or implied in these forward-looking statements will be achieved.

Production targets and financial information

Information in relation to the feasibility study conducted on the production of battery graphite using the Company’s EcoGraf technology, including production targets and forecast financial information derived from the production targets, included in this document is extracted from an ASX announcement dated 5 December 2017 “Battery Graphite Pilot Plant”, as updated on 17 April 2019 “EcoGraf Delivers Downstream Development” and 5 November 2020 “Completion of EcoGraf™ Processing Facility Development Report”, available at www.ecograf.com.au and www.asx.com.au. The Company confirms that all material assumptions underpinning the production targets and forecast financial information derived from the production targets set out in the announcement released on 5 December 2017, as updated on 17 April 2019 and 5 November 2020 continue to apply and have not materially changed.

Information in this document relating to the Bankable Feasibility Study conducted on the Epanko Graphite Project, including production targets and forecast financial information derived from the production targets, included in this document is extracted from an ASX announcement dated 21 June 2017 “Updated Bankable Feasibility Study” available at www.ecograf.com.au and www.asx.com.au. The Company confirms that all material assumptions underpinning the production targets and forecast financial information derived from the production targets set out in the announcement released on 21 June 2017 continue to apply and have not materially changed.

Competent persons

Any information in this document 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 EcoGraf 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 document of the matters based on his information in the form and context in which it appears.

Information in this document 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 document of the matters based on his information in the form and context in which it appears.

Information in this document 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 and evaluation of the 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, Mineral Resources and Ore Reserves”. Steve O’Grady consents to the inclusion in this document of the matters based on his information in the form and context in which it appears.



Diversified **HFfree™ battery anode material business** supporting the global transition to clean energy and e-mobility



BATTERY PRODUCTS

Western Australia
and Europe battery anode
material processing facilities

RECYCLING

Recovery of carbon
anode material from
lithium-ion batteries

NATURAL GRAPHITE

Scalable mining projects
for long-term supply of
natural graphite products

HFfree™ = Purification process eliminates Hydrofluoric (HF) Acid

Corporate summary



Board and Executive Management

Business Locations

Share Price 2021



Chairman
Robert Pett



Managing Director
Andrew Spinks



Director
John Conidi



Executive Director - Finance
Howard Rae



Executive Manager - Product Development
Michael Chan



Shares on issue: 449m
Unlisted performance rights: 8.55m

Major Shareholders (Top 20 = 55%)

JP Morgan Nominees 23.7%
First Sentier Investors 8.6%
Board & Management 7.5%

Allianz Global Investors 5.1%
Paradice Investment 5.1%

ASX : EGR
Börse Frankfurt : FMK
USA OTCQX : ECGFF

Share price A\$0.61
Market capitalisation A\$274m
Cash on hand A\$53m

Value proposition



Battery Anode Material Facility Australia

- ✓ 20,000tpa Battery Graphite
 - ✓ US\$35m Annual EBITDA
 - ✓ 42.4% Internal Rate of Return
 - ✓ US\$642m Pre-tax project NPV₈
 - ✓ US\$448m Pre-tax¹ equity NPV₈
- Payback ~3.3yrs

Diversified battery anode material business positioned for the global transition to clean energy

TANZGraphite

Epanko Graphite Project Tanzania

- ✓ 60,000tpa Natural Flake Graphite
- ✓ US\$44.5m Annual EBITDA
- ✓ 38.9% Internal Rate of Return
- ✓ US\$211m Pre-tax equity NPV₁₀
- ✓ US\$3B Forecast Contribution to Tanzania

Development ready businesses forecast to generate US\$80m EBITDA per annum

ECOGRAF LOCATIONS



Recycling – Recovery of Battery Anode Materials

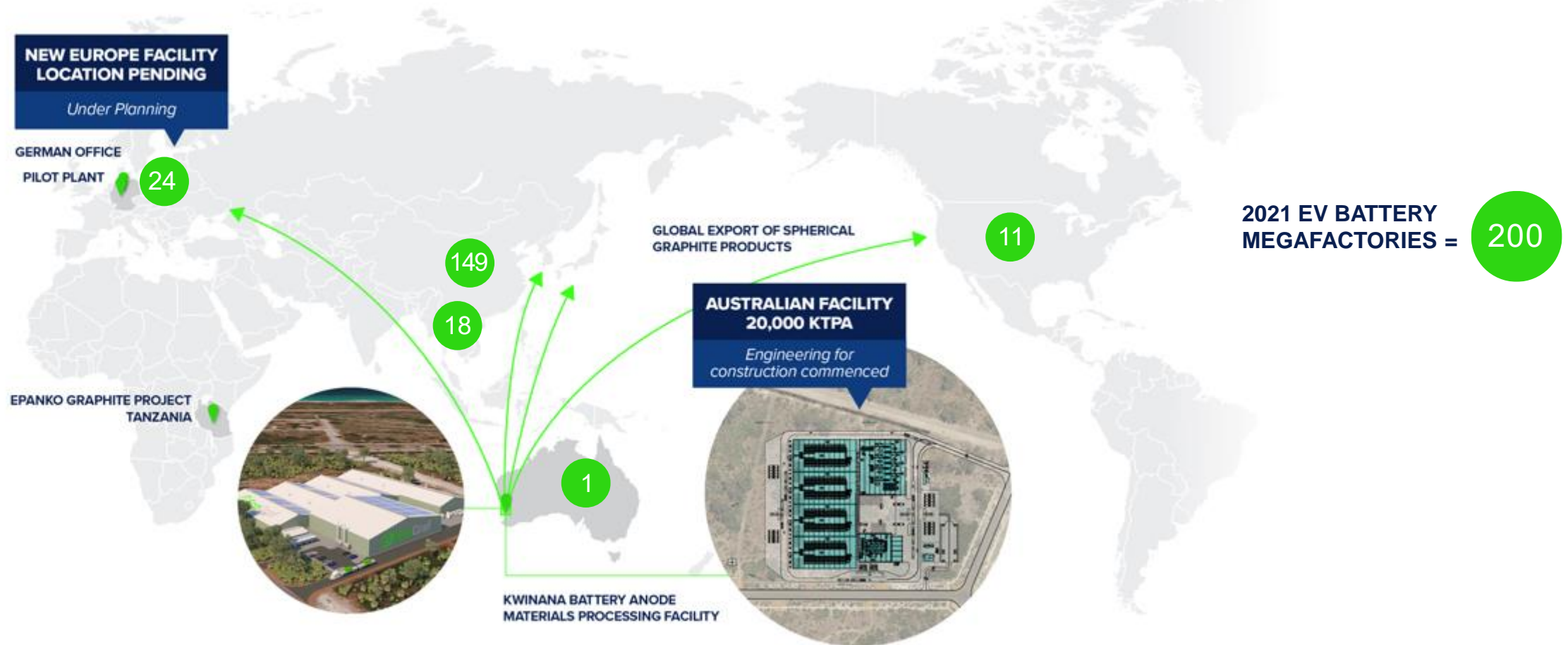
- ✓ Significant results achieved
- ✓ Production waste – large market
- ✓ Lower battery cost and emissions
- ✓ Blended anode material opportunity
- ✓ Engineering design for pilot plant commenced

Proprietary EcoGraf™ purification technology provides sector leading ESG credentials with application to battery recycling industry

Global expansion strategy



SUPPLY OF BATTERY ANODE MATERIALS TO KEY GROWTH MARKETS



Current battery anode materials supply chain is 100% reliant on China. Strategy to expand production and regionalise additional manufacturing facilities in Europe, Asia and the US to support increasing demand.

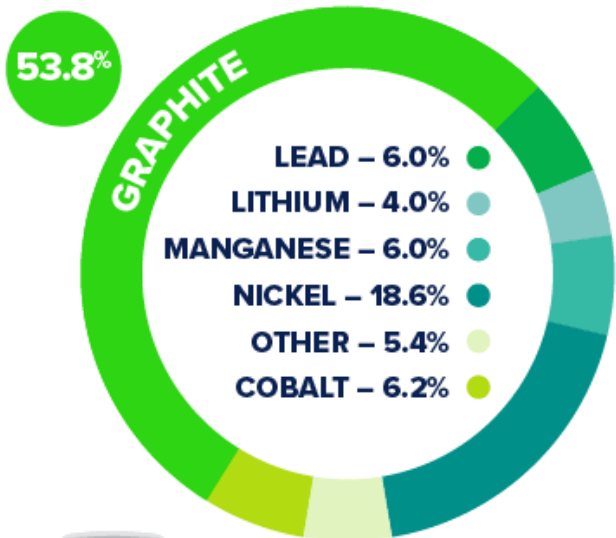


Lithium-ion Battery Market Overview.

Compelling lithium-ion battery market opportunity



MINERAL DEMAND FROM ENERGY STORAGE



+700% BY 2025

EV MARKET FORECAST TO DRIVE +700% GROWTH IN NATURAL GRAPHITE DEMAND BY 2025

GOVERNMENTS GLOBALLY PHASING OUT SALES OF NEW INTERNAL COMBUSTION VEHICLES

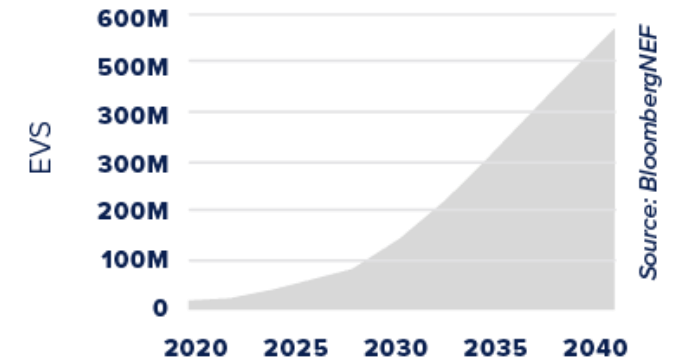


THERE WILL BE

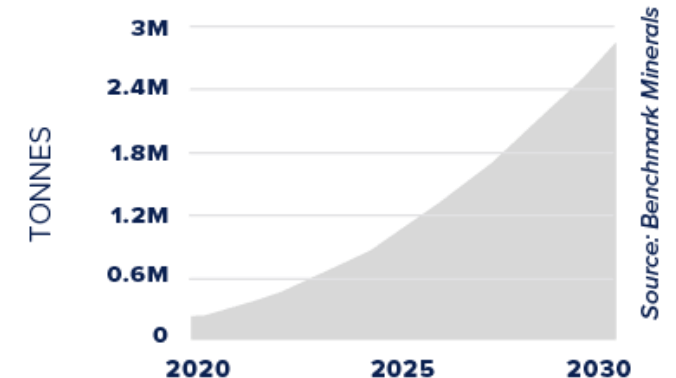


DIFFERENT EV MODELS GLOBALLY

EV DEMAND



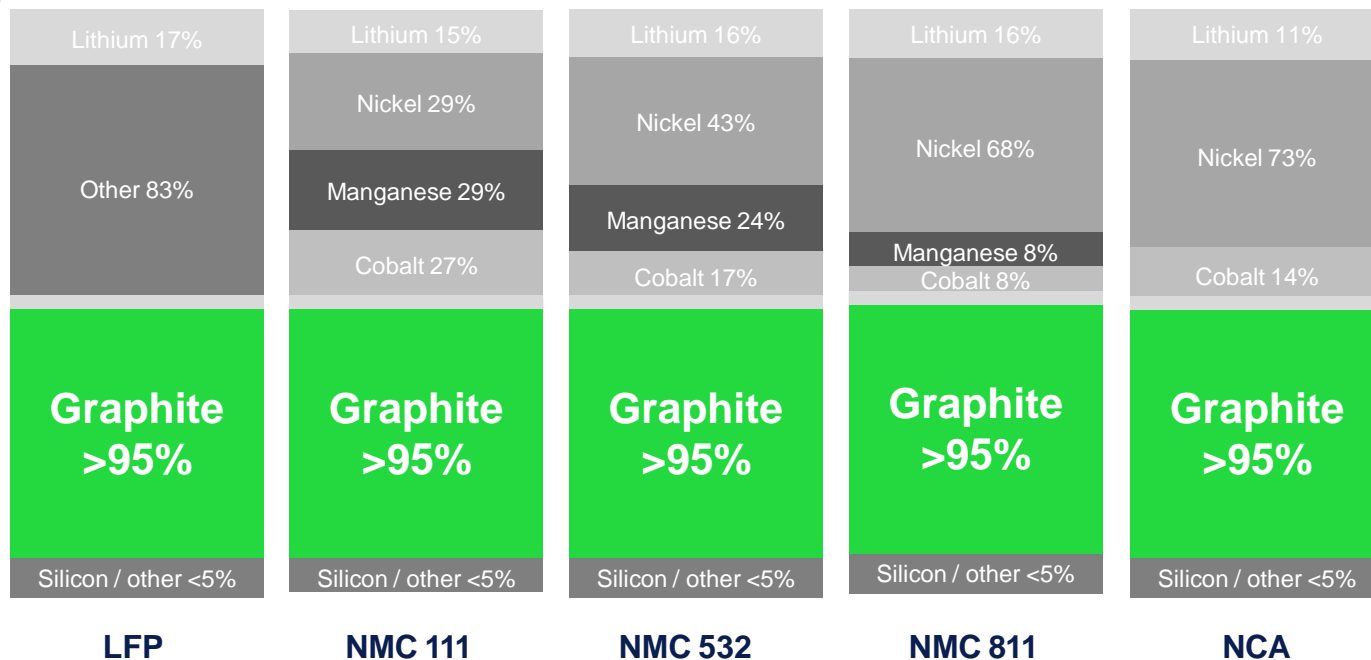
ANODE DEMAND



Lithium-ion battery chemistry



Graphite is the major raw material in lithium-ion batteries



27kg

PURIFIED NATURAL GRAPHITE PER EV
WHICH REQUIRES



50KG – 55KG
FLAKE GRAPHITE

99.95%

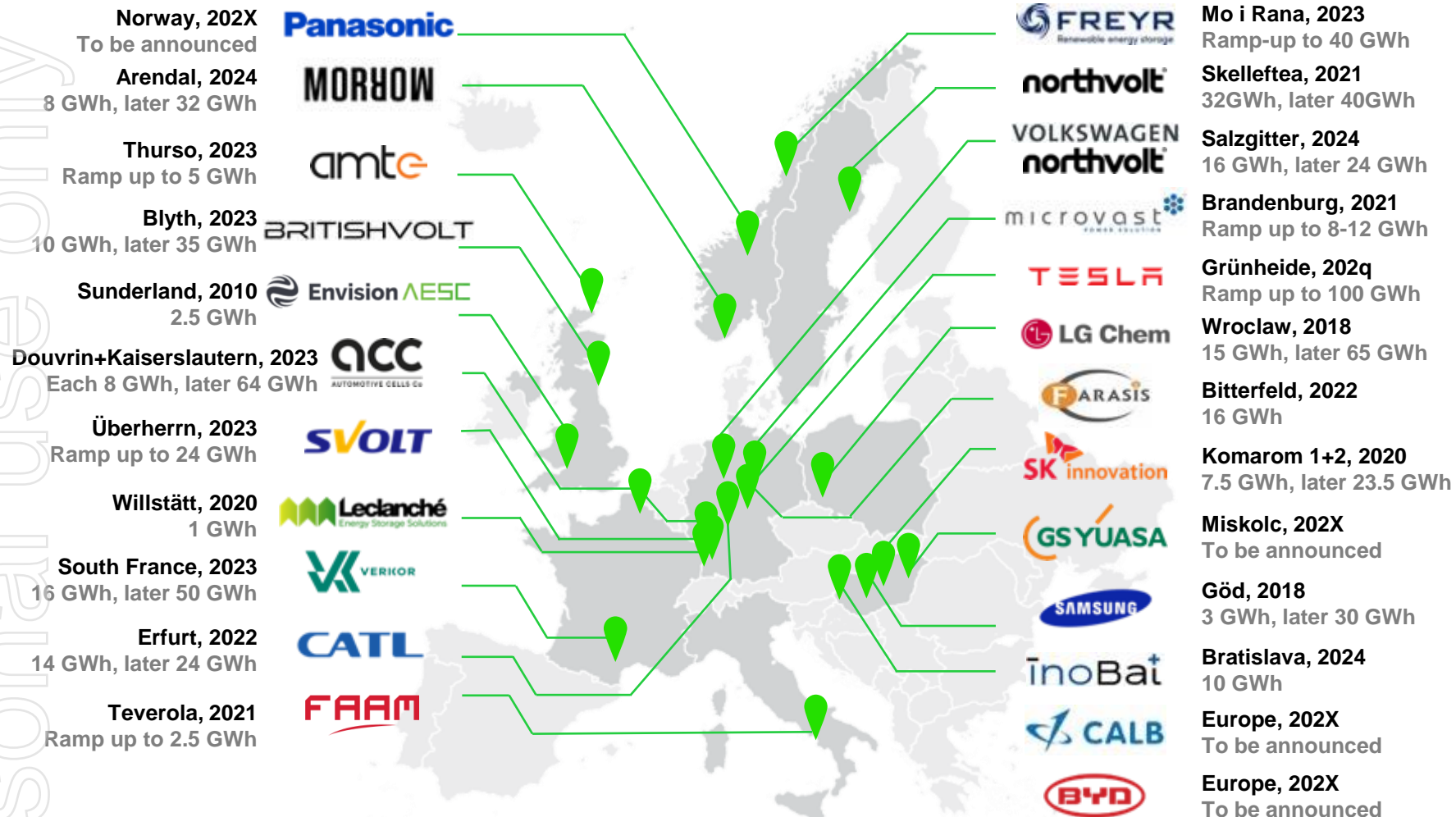
BATTERY GRAPHITE =
HIGH PURITY PRODUCT
FOR ANODE
MANUFACTURING

EcoGraf™ provides a high quality, cost competitive alternative to existing battery graphite produced using toxic hydrofluoric (HF) acid

Graphite dominates lithium-ion battery anodes – 1.1kg per kWh required to drive strong demand

Unprecedented investment in new European battery capacity

24 Gigafactories announced with 600 GWh total annual production capacity
= 9-10 million electric vehicles per year

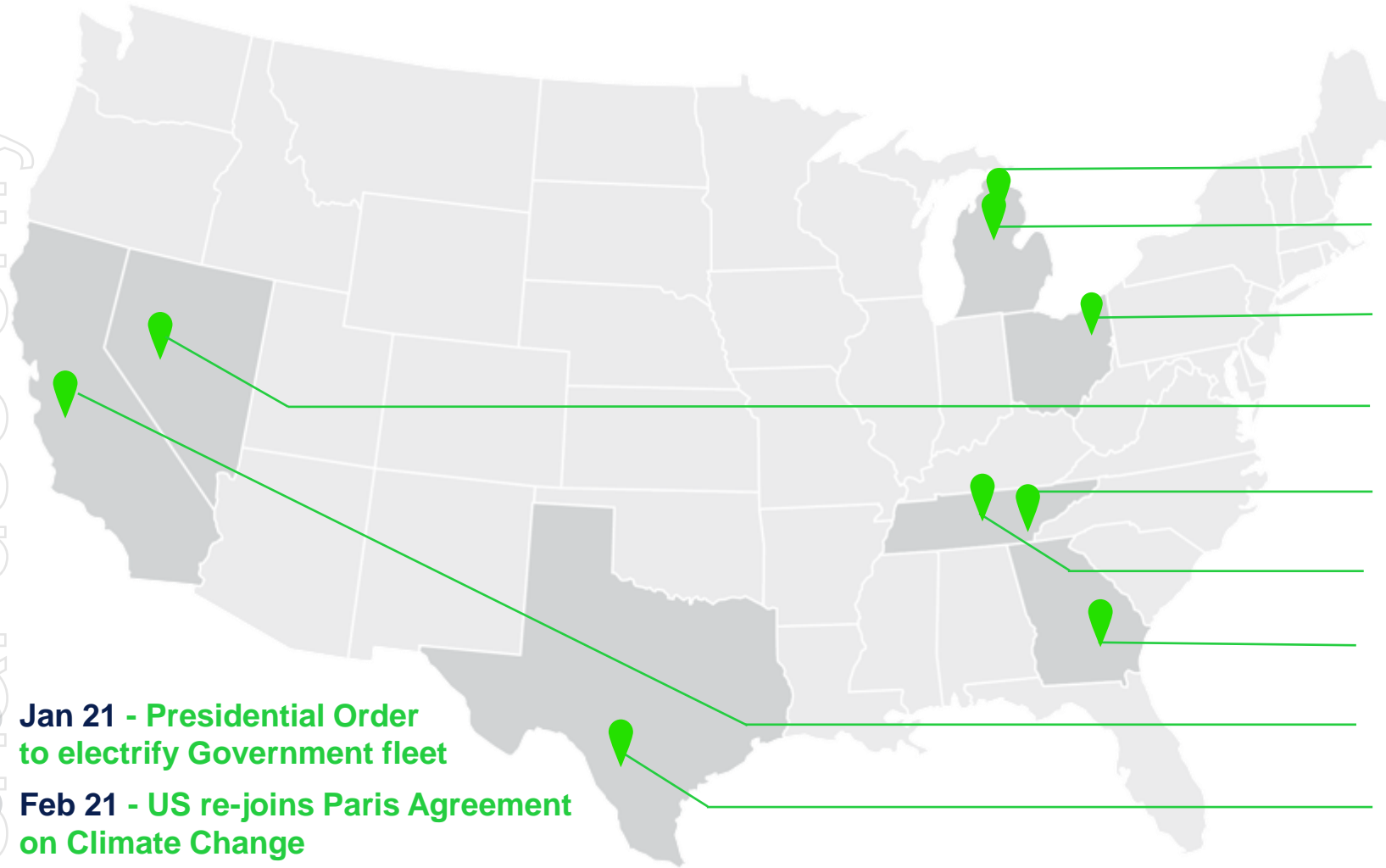


Source: Roland Zenn

- ✓ EU fastest growing market in the world
- ✓ Demand requires new supply
- ✓ Increasing requirement for low carbon supply chains coupled with greater recycling

✓ Exposure to European supply chains from partnership with EU support

US lithium-ion battery capacity to accelerate under President Biden



 **LG Chem**

Michigan, 2023
35 GWh

SAMSUNG

Michigan, 2025
TBC GWh

  **LG Chem**

Ohio 2020,
35 GWh

Panasonic 

Nevada, 2017
Ramp-up to 105 GWh

  **LG Chem**

Tennessee 2023,
30 GWh

 **Automotive Energy Supply Corporation**

Tennessee 2023,
3 GWh

 **SK innovation**

Georgia, 2022
10 + 12 GWh



California, 2010
10 GWh



Texas, 2021
100 GWh



Location Unknown,
8-16 GWh

✓ **Jan 21 - Presidential Order to electrify Government fleet**

✓ **Feb 21 - US re-joins Paris Agreement on Climate Change**

✓ **Apr 21 - Infrastructure plan to include 500,000 EV charging stations**

EU Commission's battery ESG regulations

NEW MEASURES ANNOUNCED TO PROMOTE SUSTAINABILITY

POLICY

Responsible sourcing. New mandatory procedures to ensure sustainable and ethical sourcing of raw materials such as graphite.

Carbon (CO₂) footprint, performance and durability labelling. All batteries sold in Europe must declare their carbon footprint.

Traceability. All raw materials used in batteries to be procured according to OECD recognised guidelines for sustainable sourcing. Thanks to blockchain technology, each battery will have a digital passport tracking all upstream components.

Recycling and establishing a circular economy. A minimum proportion of battery content to be made up of recycled materials. To close the loop and retain valuable materials used in batteries - such as cobalt, lithium, nickel and graphite - for as long as possible, the Commission proposes to establish new requirements and targets on the collection, treatment and recycling of batteries.

ECOGRAF'S ESG

- ✓ EcoGraf™ HF free proprietary purification process
- ✓ Epanko developed under Equator Principles
- ✓ EcoGraf™ recycling
- ✓ Renewable energy inputs into businesses
- ✓ Implementing low impact mining methods
- ✓ Implementation of Block Chain technology
- ✓ EcoGraf™ HF free proprietary purification process eliminates use of toxic hydrofluoric acid
- ✓ EcoGraf™ recycling enables customers to achieve improved recycling efficiencies

EcoGraf's sector leading ESG credentials are matched to support the global transition to clean energy



EIB new energy lending policy supporting projects relating to the supply of critical raw materials



Battery Anode Material Business.

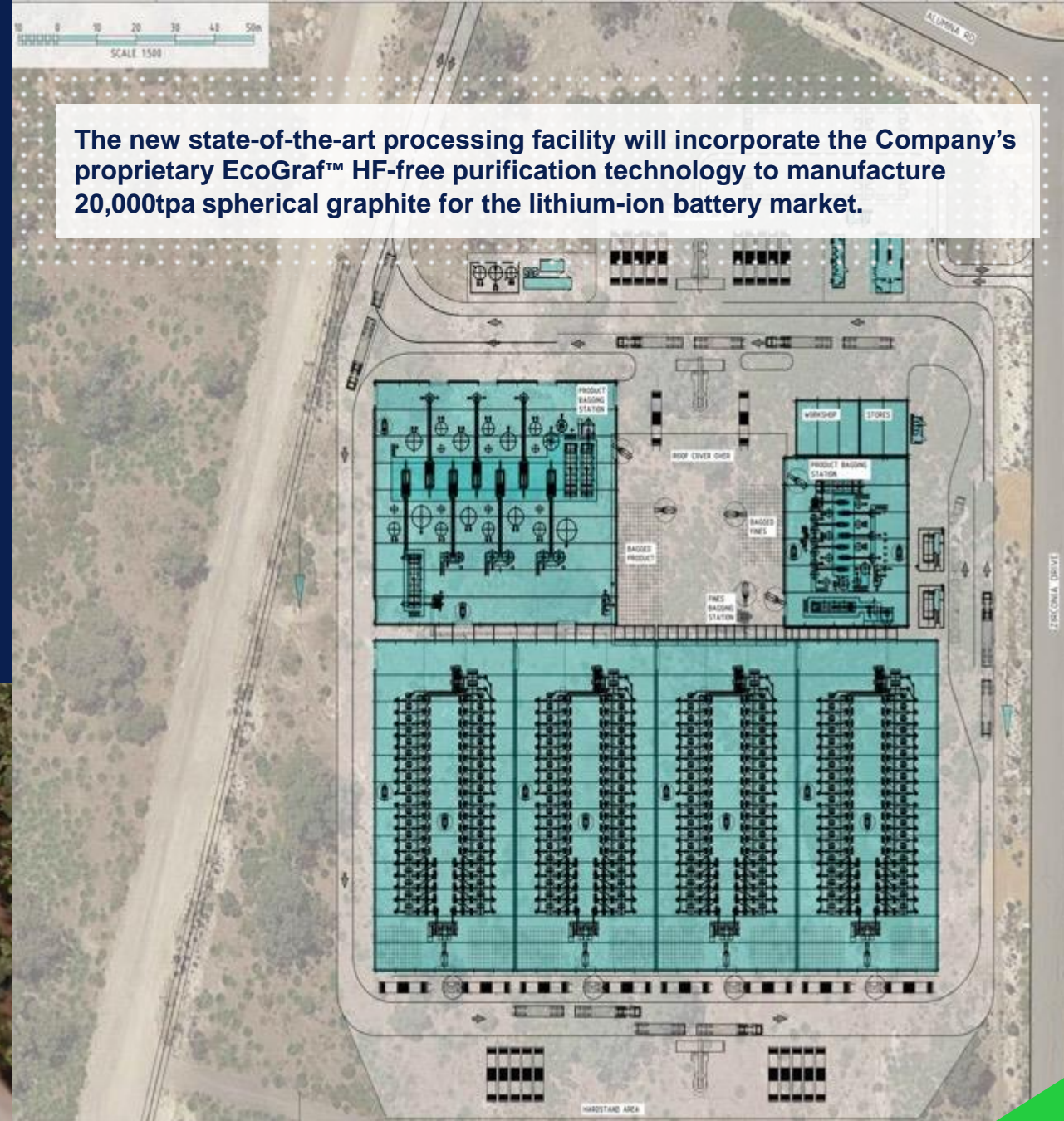
Western Australian Battery Anode Materials Processing Facility

CURRENT STATUS

- Completed due diligence documentation for debt financing process.
- GR Engineering commenced pre-construction works for the detailed engineering design.
- Finalising regulatory approvals, site infrastructure and services, including power, water, gas and reagent procurement arrangements.
- Commenced recruitment process to secure experienced graphite and project development professionals to support the construction and operational commissioning programs.



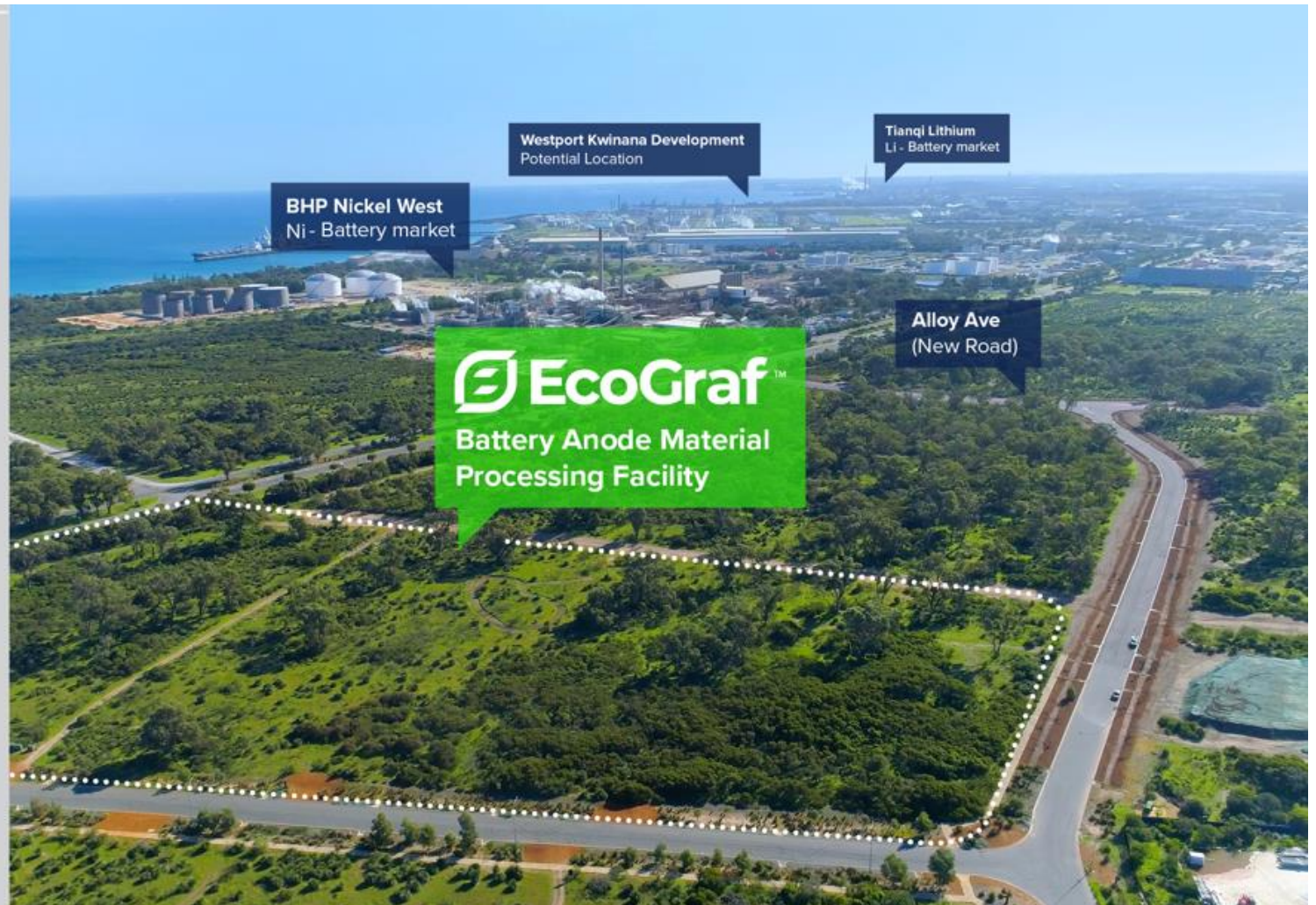
The new state-of-the-art processing facility will incorporate the Company's proprietary EcoGraf™ HF-free purification technology to manufacture 20,000tpa spherical graphite for the lithium-ion battery market.



Western Australia: Kwinana-Rockingham location



ersonal use only



Initial battery graphite facility to be constructed in Western Australia



Staged expansion from 5,000tpa to 20,000tpa



Flexibility via scalable modular design



[PLAY MOVIE](#)

Battery graphite business summary



Establishing the world's first commercial battery graphite purification facility outside of China

Initial commercial production plant commencing at 5,000tpa, expanding to 20,000tpa

- ✓ EcoGraf™ **HFFree™** proprietary purification process eliminates use of toxic hydrofluoric acid
- ✓ Feasibility, engineering and costing studies completed by GR Engineering Services
- ✓ Four years of pilot plant test work undertaken in Germany:
 - ✓ Successful application of EcoGraf™ purification process to a range of global feedstock supplies
 - ✓ Long-term feedstock agreement with leading German trading group TECHNOGRAFIT GmbH
- ✓ Extensive product testing completed and long-term sales via thyssenkrupp AG
- ✓ Financing with Australian Government US\$35 million debt facility
- ✓ Finalising construction, operations and maintenance arrangements



EcoGraf's first facility to meet growing global battery demand

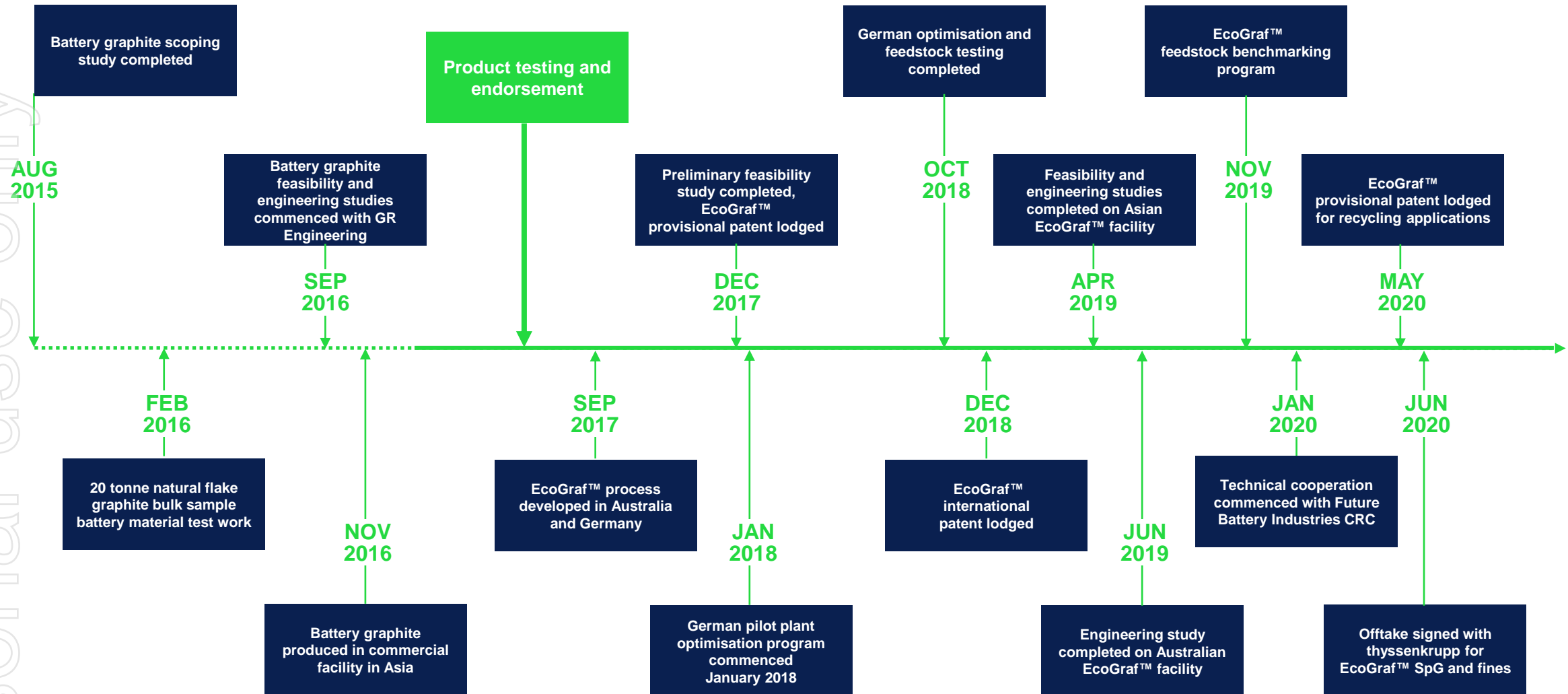


Capital investment

Financial returns @ 20,000tpa

Initial 5,000tpa	15,000tpa Expansion	Pre-tax project NPV ₈	Pre-tax equity NPV ₈	Annual EBITDA	IRR
US\$22.8m	US\$49.2m	US\$642m	US\$448m	US\$35m	42.4%

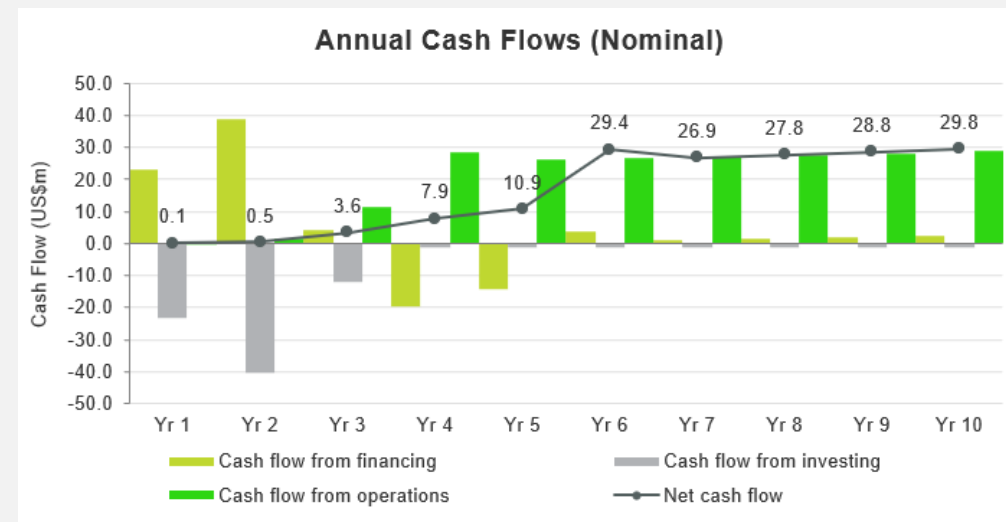
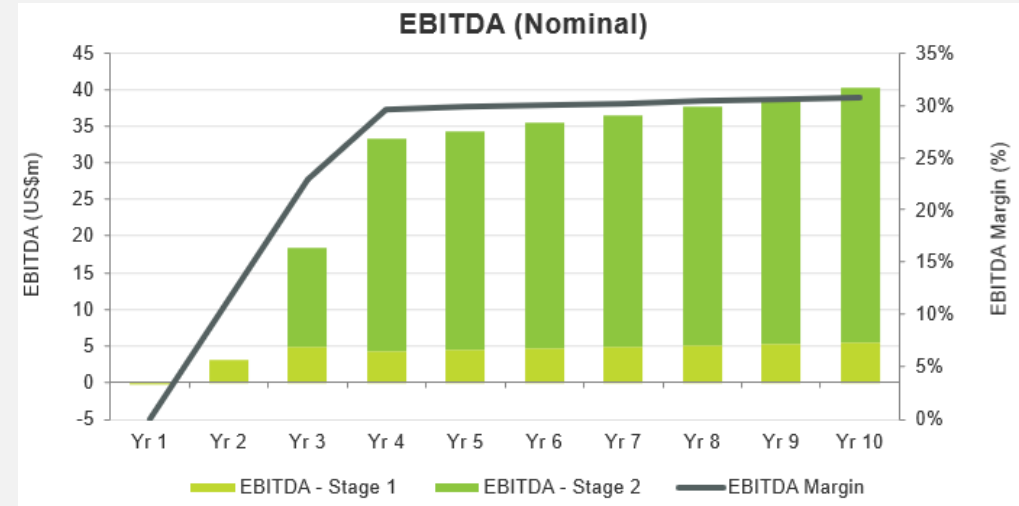
EcoGraf™ development timeline



Strong economic returns

World's first purified spherical graphite processing facility outside of China at a time when electric vehicle, battery and anode producers are actively seeking to diversify battery mineral supply chains.

Demand for spherical graphite forecast to grow 31.5% per annum over the next decade



Federal Government support

Support for new technology and value added manufacturing

- ✓ Major Project Status (MPS) approved
- ✓ Australian Government funding support
- ✓ 6.7ha industrial site located in the Kwinana-Rockingham Industrial Area
- ✓ Advance approval granted by AusIndustry for research and development programs totaling A\$8m
- ✓ Australia's strong reputation as a reliable supplier of high-quality industrial products



PLAY VIDEO - ECOGRAF BATTERY GRAPHITE
MANUFACTURING FACILITY SITE LOCATION

<https://youtu.be/Jb0xlhFSdsU>



PLAY VIDEO – AUSTRALIAN GOVERNMENT
MAKE IT HAPPEN ECOGRAF CASE STUDY

<https://youtu.be/1fiWmYrd3WM>

State Government support



Kwinana-Rockingham area expected to become a major global battery mineral processing centre

- ✓ Lead Agency role managed by Western Australian Government Department of Jobs, Tourism, Science and Innovation
- ✓ EcoGraf invited to join WA Ministerial Battery Taskforce
- ✓ Emerging industrial zone for value added processing of battery materials
- ✓ Direct port access and readily available infrastructure
- ✓ High transparency over ethical raw material production supply chain
- ✓ Protection of intellectual property rights for further downstream processing activities, including battery recycling



WA's State Premier Mr Mark McGowan, Minister for Energy Mr Bill Johnston and DevelopmentWA Chief Executive Mr Frank Marra with EcoGraf's Robert Pett, Howard Rae and Andrew Spinks



Government of Western Australia
Department of Jobs, Tourism, Science and Innovation





Natural Flake Graphite Business.

Flake graphite business summary



Long life Epanko Graphite Mine to supply industrial and battery markets

Defined, de-risked and ready for construction

- ✓ Bankable Feasibility Study completed by GR Engineering Services
- ✓ Bank appointed Independent Engineer's Review completed by SRK Consulting
- ✓ Supporting Tanzania's industrialisation strategy
- ✓ Granted Mining Licence



Sector leading ESG credentials

- Equator Principles development model, satisfying:
- ✓ International Finance Corporation Performance Standards
 - ✓ World Bank Group Environmental, Health & Safety Guidelines



Scalable production plant

60,000tpa initial development with low cost expansion to meet market demand

Sales agreements with major international customers

thyssenkrupp (Germany) and Sojitz Corporation (Japan)



Capital investment

Financial returns @ 60,000tpa

60,000tpa

Pre-tax NPV₁₀

Annual EBITDA

IRR

US\$89m

US\$211m

US\$44.5m

38.9%

Bankable feasibility study (BFS) key highlights



- 50% increase in production to 60,000tpa positions Epanko to be a major baseload supplier of high value graphite products to traditional and emerging graphite markets
- Low pre-production capital of US\$88.9m
- C1 operating costs FOB Dar es Salaam of US\$500/t
- BFS delivers a high returning project:
 - Pre-tax NPV₁₀ of US\$211m
 - Internal rate of return:38.9%
 - Annual EBITDA of US\$44.5m
- Economics do not include sales into the high-growth lithium-ion battery market
- **Metallurgical test work demonstrates potential to produce 99% carbon concentrate from fresh ore with no additional milling or cleaning stages**
- Executed marketing strategy with strong alignment to German industry and the battery supply chain in Japan, Korea and Taiwan
- 44ktpa - binding sales and offtake agreements in place covering initial production
- 16ktpa - under negotiation with existing partners and leading European carbon groups
- Debt financing program with Germany's KfW IPEX-Bank
- Manufacturing of EcoGraf™ battery grade graphite to add further value



99% carbon purity provides a long-term supply of high quality feedstock for the manufacture of battery graphite



High carbon purity will reduce EcoGraf™ battery graphite purification costs



Rigorous 60,000tpa BFS and strong economic returns positions Epanko for development

- Robust technical and financial BFS completed, conforming with IFC standards
 - Average production of 60,000tpa graphite concentrate
 - High proportion of >150 micron concentrate at carbon grades demanded by the market
 - Potential to produce a 99% carbon concentrate from <150 micron flake to supply high growth battery anode market
- BFS utilised industry leading consultants
 - Including GR Engineering, Knight Piesold, CSA Global and IMO Metallurgy
 - Technical due diligence completed by independent bank appointed engineer SRK
- BFS economics are based on sale into refractory and other established markets
 - Significant upside potential through access to high value markets, including spherical and expandable graphite



Epanko bankable feasibility study outcomes

Development period	(months)	19
Average annual throughput	(tonnes)	695,000
Strip ratio	(waste to ore)	0.4:1
Average feed grade	(% TGC)	8.3
Graphite recovery	(%)	94.7
Average product carbon grade	(%)	96
Graphite production	(tonnes per year)	60,000
Mining cost	(US\$/t processed)	7.93
Processing cost	(US\$/t processed)	19.61
General & administration cost	(US\$/t processed)	4.75
Transport and port charges	(US\$/t sold)	107
C1 FOB cost	(US\$/t sold)	500
All in Sustaining cost ¹	(US\$/t sold)	572
Pre-production capital cost	(US\$ million)	88.9

¹: Includes royalties (US\$39/t), sustaining capital (US\$15/t), off-site corporate functions (US\$10/t) and rehabilitation (US\$8/t)

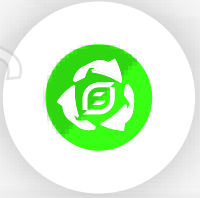
EcoGraf provides mine-to-market ESG supply chain assurance



- EcoGraf's Epanko mine development satisfies Equator Principles social and environmental planning standards
- Long-life, high quality supply of natural flake graphite for industrial and battery markets
- Ideally located to support European customers' supply chain management under the Paris Agreement on climate change
- German and Australian Government funding support
- US\$60m debt funding proposal developed in conjunction with Germany's KfW IPEX-Bank and presented to the Government of Tanzania with the aim of simplifying and fast-tracking the financing process
- Recent initiatives by the Government of Tanzania to encourage greater foreign investment expected to support the project funding program

Epanko to transform the regional economy, operating for over 40 years and contributing over US\$3 billion to Tanzanian economic and social development





Lithium-ion Battery Recycling Business.

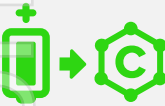
Battery recycling



Market Overview



Recycling efforts have focused on cathode metals



Carbon anode materials are currently not recovered

PRODUCTION SCRAP	Carbon material which is a waste product generated from each stage of battery anode manufacturing, cell manufacturing and battery testing
BLACK MASS	Carbon material remaining after hydrometallurgical processes have recovered the high value cathode metals from end-of-life lithium-ion batteries

Benefits and Opportunity



Reducing battery production costs

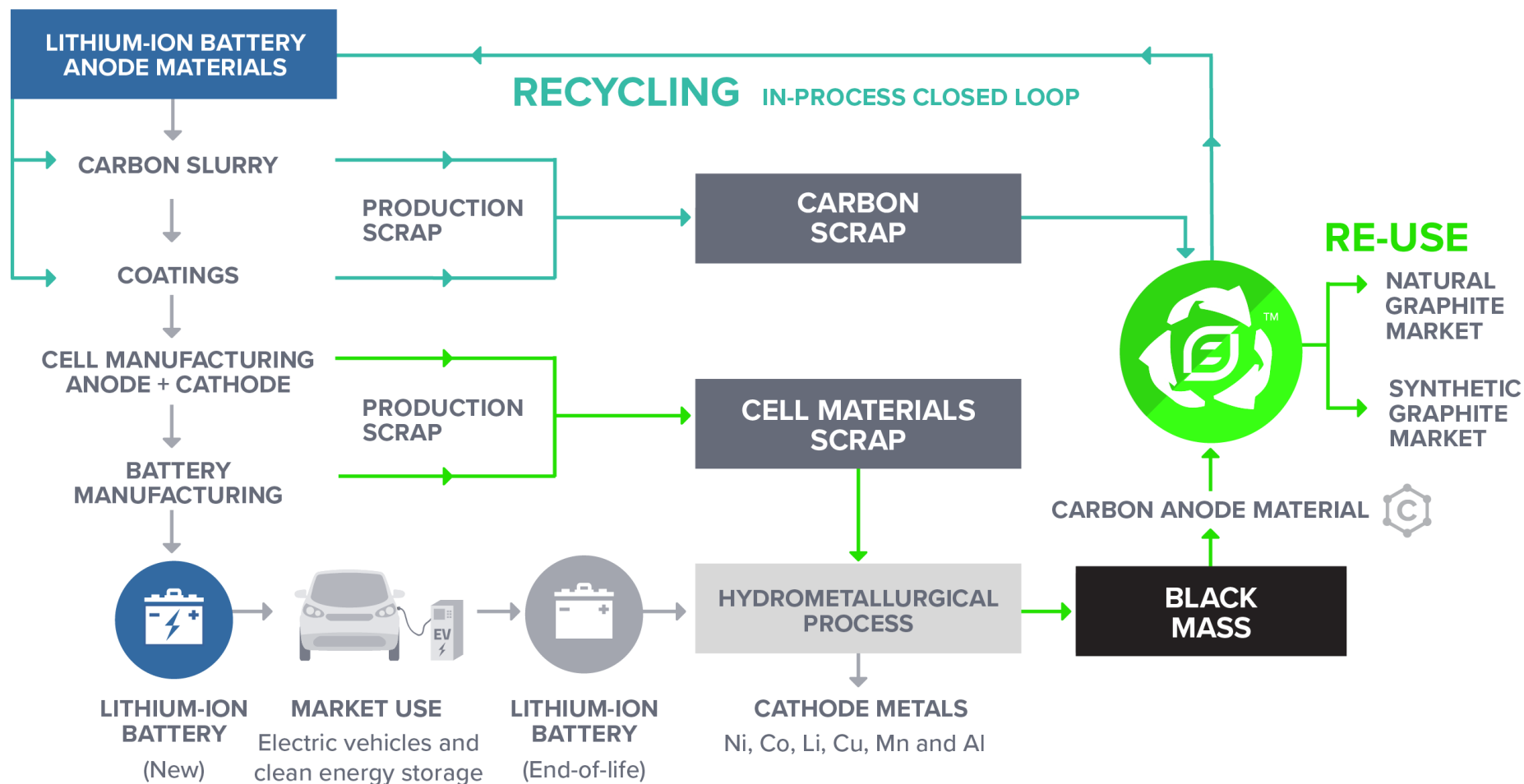


Lowering the EV carbon footprint

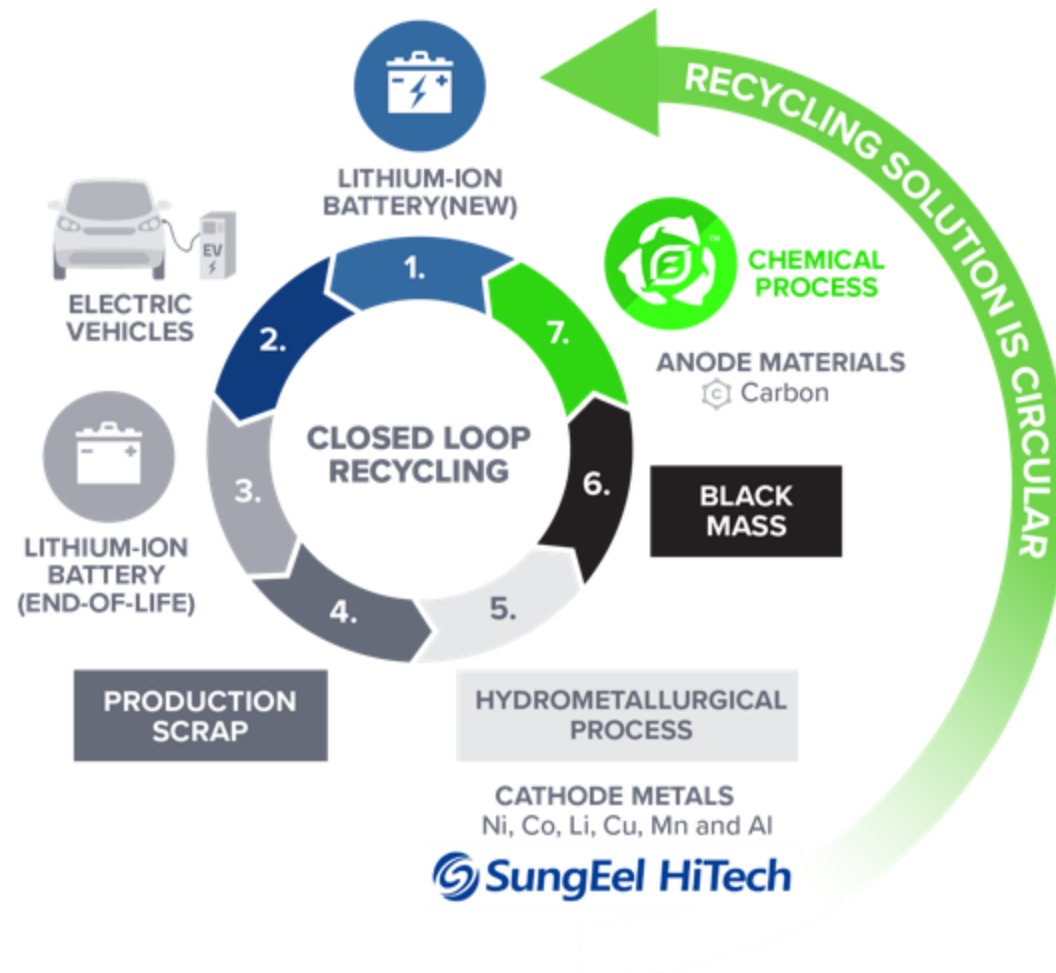
Proposed EU legislation requires more battery recycling and greater transparency in the raw materials supply chain.



EcoGraf's strategy to recover and reuse carbon anode material



EcoGraf positioned to recover and reuse carbon anode material



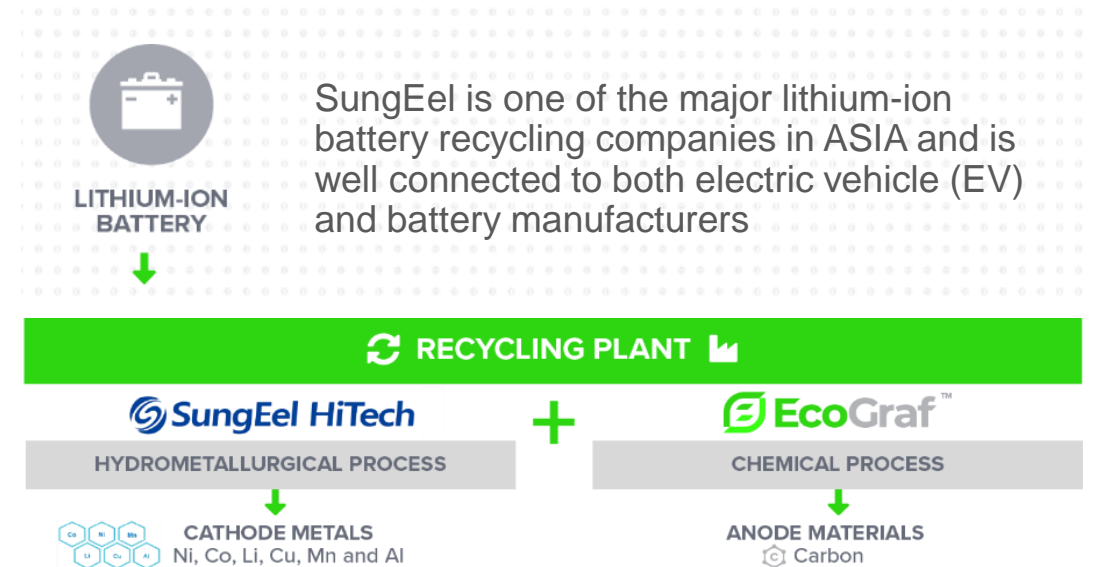
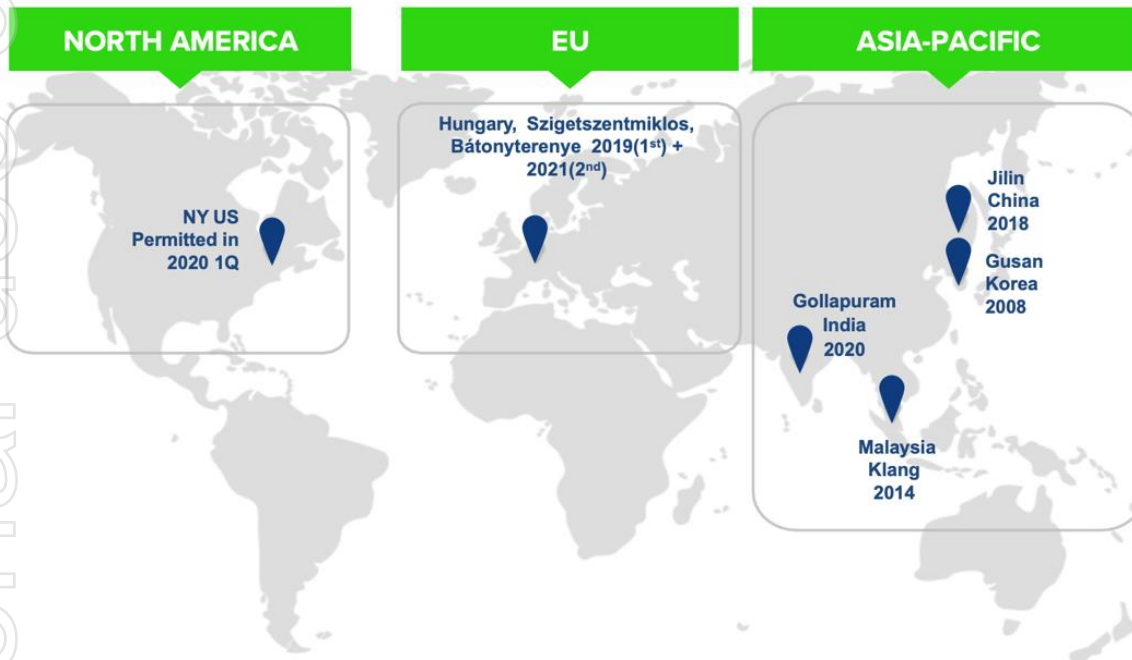
Agreement signed with South Korea's largest lithium-ion battery recycling group SungEel HiTech

SungEel HiTech Agreement



Collaboration presents opportunity to provide tailored EcoGraf™ process in future lithium-ion battery recycling plants

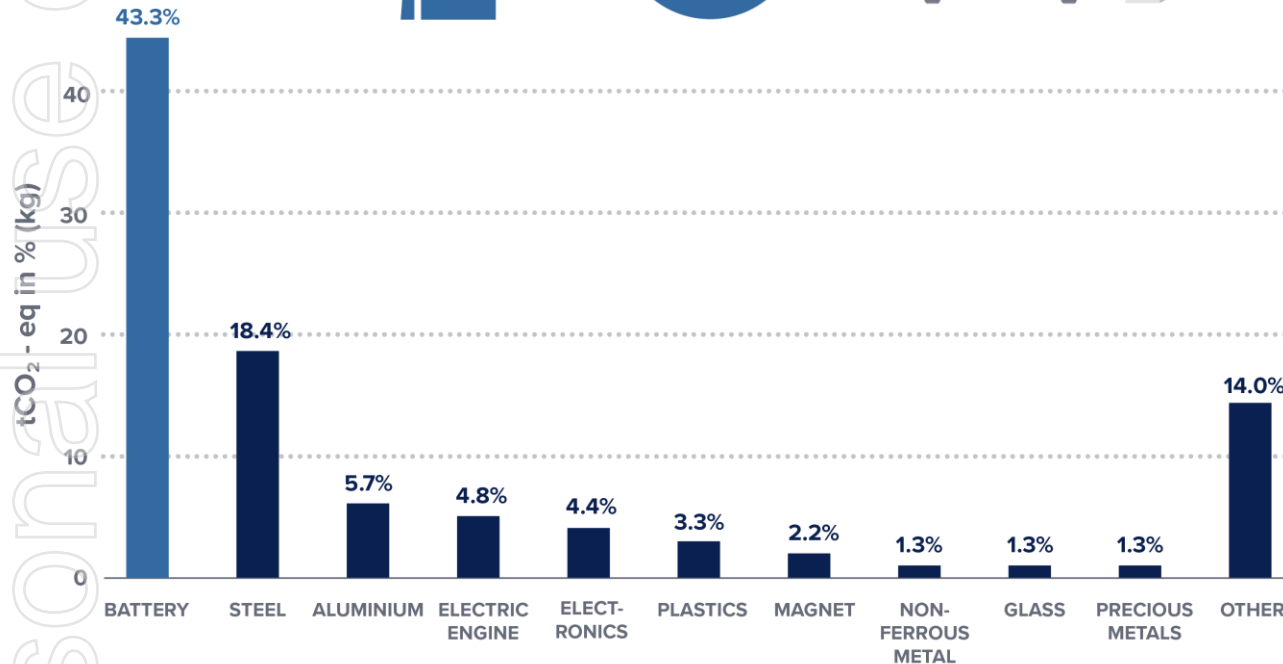
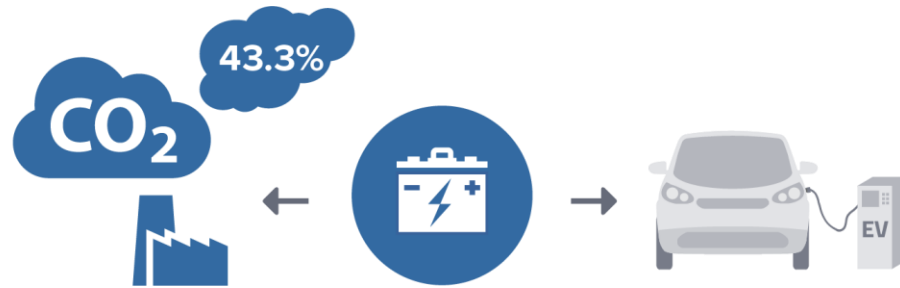
SungEel Global Pre-treatment Plants



EcoGraf™ recycling - lowering EV production carbon emission footprint



Battery represents over 40% of total carbon (CO₂) emission footprint from EV manufacturing



Reference (No Canary, Volkswagen)

PRODUCTION SCRAP

- Estimated 10 - 30% production loss during cell manufacturing and battery testing
- **Solution:** Develop 'In-Process' recovery of production scrap (slurries and coatings waste)
- Reuse would eliminate 13.5kg of CO₂ per kWh

Reference (No Canary)

BLACK MASS

- **Solution:** Recover and reuse carbon anode material in high purity carbon markets and battery supply chains

Recycling of carbon anode material has an important role in reducing CO₂ emissions

Blended battery anode material opportunity



Lower battery production cost



Lower carbon emissions

BLENDED ANODE MATERIAL PRODUCTS

Blending EcoGraf's high purity 'Battery Graphite' with 'Recovered Carbon Anode Materials' provides an attractive opportunity to support the transition to clean energy



Battery
Spherical
Graphite
(99.98% C)



Recovered
Carbon
Anode
Material



Battery Cell
Manufacturers' Carbon
Grade Specification
(99.95% C)



Modular recycling pilot plant



TAILORED CUSTOMER SOLUTION

EcoGraf™ proprietary HF_{free} purification technology has the potential to provide a tailored solution to increase recycling of recovered battery anode material

- Engineering design commenced for a containerised pilot plant
- Funding for the pilot plant to be supplemented through the Company's R&D programs and collaboration with potential customers
- Pilot plant to provide recovered carbon anode material for product qualification process, focused on the reuse of graphite in lithium-ion batteries and specialised industrial carbon products



Product development programs to target a range of market opportunities

Industrial Application Markets for Recovered Carbon Anode Material	Natural	Synthetic
Alkaline and zinc carbon batteries	✓	✓
Lithium-ion batteries	✓	✓
Friction materials	✓	-
Refractories	✓	-
Carbon additives	-	✓



Advantages and Opportunities.

Key advantages



*Diversified **HFFree™**
battery anode material business supporting the
global transition to clean energy and e-mobility*

✓ Over 8 years of technical work programs and extensive product qualification with a range of potential customers

✓ Bank due diligence processes undertaken with rigorous reviews of technical and engineering studies

✓ Product sales and collaboration with market leading counterparties

✓ Production levels matched to market demand with engineering designs to allow rapid expansion

✓ Downstream processing strategy centered on producing uncoated purified spherical graphite for a market forecast to grow 15x over the next decade

✓ Diversified battery anode materials business positioned to support recent EU legislative changes on sustainability

✓ Lithium-ion battery recycling business provides the opportunity to lower battery production costs and reduce carbon emissions from EV manufacturing

✓ Blended battery anode material provides a unique eco-friendly product

✓ Strategy to expand production and regionalise additional facilities in Europe, Asia and the US to support increasing demand

✓ Planning initiated on 2nd plant in Europe with significant capital savings

✓ On-going research and innovation to identify further value adding opportunities using the EcoGraf™ purification process

Outlook and next steps

BATTERY PRODUCTS

- Complete engineering programs with GR Engineering and regulatory approvals for the construction of the initial 5,000tpa EcoGraf™ processing facility in Western Australia
- Arrange US\$35m debt financing with the Australian Government for the expansion of the Western Australian facility to 20,000tpa
- Advance works for a 2nd plant site in Europe
- Continue to build strategic partnerships with key battery industry participants

NATURAL GRAPHITE PROJECT

- Advance the US\$60 million debt financing proposal submitted to the Government of Tanzania for construction of the new Epanko Graphite Mine

BATTERY RECYCLING

- Finalise engineering and construction of a containerised pilot plant to provide recovered carbon anode material for product development and qualification processes
- Continue testwork with EV and battery manufacturers
- Develop strategic partnerships in key markets

CORPORATE

- Recruitment of executive team to execute growth strategy
- Support trading on the US OTCQX Market to increase global investor engagement
- Secure further support for research, innovation and advanced manufacturing programs



BATTERY PRODUCTS
Western Australia
development ready
20,000tpa processing facility



NATURAL GRAPHITE
Scalable mining projects
for long-term supply of
graphite products



RECYCLING
Recovery of battery
anode materials from
lithium-ion batteries

The future is **electric.**



**BATTERY
PRODUCTS**

RECYCLING

**NATURAL
GRAPHITE**



Head Office

18 Richardson Street
West Perth, Western Australia 6005
T: +61 8 6424 9000

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ENGINEERING CLEAN ENERGY