

17 January 2023 ASX ANNOUNCEMENT

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# Scoping Study Provides Compelling Case for Battery Anode Material Plant in Europe

Study confirms strong opportunity to produce material for use in lithium-ion batteries by value-adding graphite concentrate from Evion's Maniry Project

## **Key Points**

- Evion's Scoping Study finds a Battery Anode Material (BAM) plant in Europe would generate strong returns
- The plant would process graphite concentrate from Evion's Maniry project in Madagascar into uncoated spheronised purified graphite (SPG) for use in lithiumion batteries
- The Study reviewed five different process routes and two throughput rates as a precursor to an Pre-feasibility Study
- Discussions already underway with strategic stakeholders about finance / grants, offtakes and location options within Germany.
- BAM Study follows the highly successful Definitive Feasibility Study on Maniry, which found the project would generate strong financial returns and be technically robust (see ASX release dated November 3, 2022 "BlackEarth completes Positive DFS for Maniry Project")
- The DFS showed Maniry graphite would meet the requirements for many valueadded products, including lithium-ion batteries and other decarbonisationrelated products
- The Maniry DFS and the BAM Scoping Study are central to Evion's strategy to be a vertically-integrated supplier of graphite products, enabling it to capitalise on the forecast surge in demand from the lithium-ion battery and EV markets

#### **Scoping Study: Cautionary Statements**

The Scoping Study referred to in this announcement has been undertaken in regards to providing the outcomes for the Battery Anode Material ("BAM") Project inclusive of a sensitivity analysis across a number of key parameters. The Scoping Study is a preliminary technical and economic study of the potential viability of the BAM Project. It is based on low level technical and economic assessments and previously undertaken test work.

Further product tests, evaluation work and appropriate studies are required before Evion will be in a position to provide any assurance of an economic development case. The Scoping Study is based on a number of material assumptions. These include assumptions about the availability of funding. While Evion considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Scoping Study will be achieved.

To achieve the range of outcomes indicated in the Scoping Study, funding will be required for further studies and the capital required to implement the Project and are currently estimated to be in the range of USD\$125 -135 million (including a 30% contingency). Investors should note that there is no certainty that Evion will be able to raise that amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Evion's existing shares. It is also possible that Evion could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the project. If it does, this could materially reduce Evion's proportionate ownership of the project, which is currently 100%.

Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Scoping Study.

	Product Output	
	30,000tpa	15,000tpa
Pre-Tax NPV8% (US\$M) (2)	\$392m	\$152m
Pre-Tax IRR (%)	39.50%	28.40%
Initial CAPEX (US\$M) (1)	\$117m	\$74.m
Total Pre-Tax Cashflow (US\$M)	\$2,808m	\$1,404m
Payback (years)	3.51	4.67

#### **Key Study Results:**

(1) Includes 30% contingency

(2) The NPV value does not include the positive impact of grants and other subsidies that may be apparent in the short term and positively impact these results

## Evion Managing Director Tom Revy said:

"Underpinned by our Maniry Graphite Project, this battery anode material plant has the potential to uniquely position Evion to capitalise on the strong growth in demand for non-Chinese supplies of uncoated-SPG from the European lithium-ion battery market.

By developing a vertically-integrated graphite business, Evion is positioning itself to take full advantage of the highly favourable supply-demand fundamentals emerging for our products as a result of the energy transition.

Evion continues to grow its development pipeline, which includes expandable graphite, uncoated spheronised purified graphite and the Maniry Graphite Project, in a controlled and strategic manner to provide shareholders more direct exposure to the fast-growing global graphite supply chain.

The Board believes that the quality portfolio of integrated projects it now holds, not only positions the Company to deliver against our vision but also represents significant potential value for our shareholders moving forward.".

## **Scoping Study Overview**

Evion Group NL (ASX: EVG) is pleased to announce that it has completed a Scoping Study on developing a facility to process graphite concentrate from its Maniry project in Madagascar into a product suitable for use in lithium-ion batteries.

The strategy is aimed at enabling Evion to capitalise on the emerging supply deficit for battery anode material required to make lithium-ion batteries. At present, nearly all spheronised purified graphite used in the production of lithium-ion batteries is produced in China. While Chinese dominance is likely to continue over the medium term, the outlook for SPG (see Figure 1 below) provides Evion an enormous opportunity to supply European markets (and broader) with a high quality / high value product into what is expected to be a high demand market.



In September 2022, Evion engaged Wave International ("Wave"), an independent resource development consulting group with specific expertise in the downstream processing of natural graphite concentrate, to oversee of the Scoping Study. The Study assessed the viability of building a BAM plant in Germany. The Study leveraged off the earlier battery test work programs undertaken by Dorfner ANZAPLAN in 2019–2020, when the Company completed a graphite anode suitability program (ASX Release: "BlackEarth Graphite Suitable for Lithium-Ion Batteries", 14 February 2020).

In its role as Study Manager, Wave assisted in the evaluation of building a downstream processing facility in Germany to produce (uncoated) spheronised purified graphite from a portion of graphite concentrate expected to be produced from the Maniry Project in Madagascar. The high-level flowsheet developed, incorporates mechanical shaping (micronisation and spheronisation) followed by purification. In total, 5 purification options were reviewed based on the earlier battery test work data, where results achieved a minimum 99.96% fixed carbon using a number of different purification methods. Wave compiled the various technical components, preliminary assumptions and conceptual financial model using data provided by both Evion and other specialist consultants.

Based on the preliminary qualitative and quantitative reviews undertaken as part of the Study, the caustic baking flowsheet remains the current preferred purification route.

Two product output scales were reviewed as part of the Study: 30ktpa and 15ktpa.

## Next Stage

Based on the outcomes of this Study, the following steps form the basis of future development of the Company's BAM ambitions for Germany:

- Comprehensive test work undertaken on Maniry concentrate in order to better define the process flow sheet, optimise reagent schemes and understand the characterisation of waste stream
- Progress site selection studies for the finalisation of location for the processing facility
- Investigate further infrastructure options based on site requirements
- Produce specification / datasheet for product produced from the purification flowsheet
- Commence marketing activities.

This release has been authorised by the Company's Disclosure Committee

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#### **Competent Person Statements**

The information in this document that relates to the Exploration Results, Exploration Targets and Mineral Resources and as reported in the large-scale pilot program (Refer ASX: EVG Release "Completion of the Maniry Graphite Pilot Program Delivers Outstanding Results for BlackEarth" – 9 August 2021)) is based on information compiled by Annick Manfrino, a Competent Person who is a member of the Australasian Institute of Mining and Metallurgy and was employed by the Company at that time

Annick Manfrino has sufficient experience that is relevant to the style of mineralization and type of deposit under consideration and to the activity 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.

The information in this report that relates to Maniry metallurgical test work results is based on information reviewed by Mr Tom Revy, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Revy is an employee of Evion Group. Mr Revy has sufficient experience relevant to the processing of graphite ores to qualify as a Competent Person as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code, 2012 Edition).

Both Tom Revy and Annick Manfrino consent to the inclusion of the information in this document in context in which it appears.

#### **Forward Looking Statements**

Some of the statements appearing in this announcement may be in the nature of forward-looking statements. You should be aware that such statements are only predictions and are subject to inherent risks and uncertainties. Those risks and uncertainties include factors and risks specific to the industries in which Evion Group operates and proposes to operate as well as general economic conditions, prevailing exchange rates and interest rates and conditions in the financial markets, among other things. Actual events or results may differ materially from the events or results expressed or implied in any forward-looking statement.

No forward-looking statement is a guarantee or representation as to future performance or any other future matters, which will be influenced by a number of factors and subject to various uncertainties and contingencies, many of which will be outside the Company's control.

The Company does not undertake any obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances after today's date or to reflect the occurrence of unanticipated events. No representation or warranty, express or implied, is made as to the fairness, accuracy, completeness or correctness of the information, opinions or conclusions contained in this announcement. To the maximum extent permitted by law, none of the Company's Directors, employees, advisors or agents, nor any other person, accepts any liability for any loss arising from the use of the information contained in this announcement. You are cautioned not to place undue reliance on any forward-looking statement. The forward-looking statements in this announcement reflect views held only as at the date of this announcement.

This announcement is not an offer, invitation or recommendation to subscribe for, or purchase securities by the Company. Nor does this announcement constitute investment or financial product advice (nor tax, accounting or legal advice) and is not intended to be used for the basis of making an investment decision. Investors should obtain their own advice before making any investment decision.

## Scoping Study - Executive Summary (Appendix 1)

## General

Evion Group engaged specialist resource consultant, Wave International (Wave), to undertake a Scoping Study to confirm the commercial viability of processing graphite concentrate produced from its Maniry graphite project in Madagascar into Battery Anode Material (BAM). The BAM Study assessed the viability of building a purification plant to produce uncoated spheronised high purity graphite (SPG) in Germany. The Study assessed multiple processing routes to produce on-specification battery grade spheronised graphite.

Following completion of the Study, Evion believes there is an exceptional opportunity to become a vital supplier to the lithium battery industry by processing Maniry fines into BAM. The Study demonstrates the potential to sell a portion of the Maniry fines for around four times the price it would otherwise realise by selling the concentrate as a raw product to others to process into BAM. By becoming vertically integrated in this manner, Evion stands to substantially increase revenues, margins and free cashflow while becoming an integral part of the booming lithium-ion battery industry in Europe. The BAM strategy is designed to provide valuable income diversity and increased overall financial returns from Maniry.

Demand for BAM has been rising globally due to its use in the anodes of electric vehicle (EV) batteries. In China, EV production has increased by 169.3% from 2021 - 2022 (Benchmark 2022).

Battery Anode Material (BAM) is supplied to battery producers from primary source producers who undertake extensive purification processes producing a high purity SPG product suitable for battery applications. These battery manufacturers do not have any purification capability and hence rely on the quality of the purchased product.

As part of the Scoping Study, 5 purification options were reviewed. Following completion of the Study, the preferred processing route for further investigation is currently the Caustic Baking Technology method.

The capital cost and operating cost estimates have been prepared by using data from Wave International's internal database. Multiple scenarios (purification and production scales) were provided, all of which used Wave's data as the base case. Wave classified the capital cost estimate as "conceptual only", (Class 5 Estimate) which typically allows for a +/-50% accuracy range.

The Study also identified a number of areas requiring further work, prior to and as part of completing the next phase of work – a Prefeasibility study. Further investigative test work is recommended to be undertaken to optimise reagent schemes and understand the characterisation of waste streams. From this work, Evion will produce a specification sheet for the final purified material, which will allow the commencement of marketing activities.

## **Micronisation and Spheronisation**

The proposed BAM facility commences with the receipt and storage of suitable graphite concentrate. The Study has been based on flotation concentrate feedstock from the Maniry mine to initially be micronised and spheronised. This is a process of grinding, classifying and shaping the graphite product slowly to reduce flaking within the graphite and create a uniform size distribution, whilst aiming to minimise product waste through the creation of fines (dust).

Micronisation reduces the particle size of the concentrate material to a suitable feed size for spheronisation. The spheronisation process converts the needle-like graphite particles into

spherical particles, of which varying (D50) particle sizes can be produced depending on end-user specifications.

The design process results in the manufacture of two products: an uncoated spheronised graphite product (suitable for use in the lithium-ion battery industry) and a fine high-grade by-product which is typically sold into the steel and cast-iron markets.

In 2019, the Company completed test work on concentrate from the Maniry Graphite Project. The results confirmed the material's consistency with specifications required by lithium-ion anode material manufacturers. The test work report by Dorfner ANZAPLAN, stated that "the measured values for samples after optimisation are in the range of typical comparable products" a view that was reinforced by the world's largest SPG and anode manufacturer, who reviewed the full report at the time. (Refer ASX Release "Maniry Project Produces Spherical Graphite Market Specifications" 12 Aug 2019).



Figure 2: SEM Micrograph of Spheronisation Test BE S8; Magnification 500x

## Purification

In 2019, the Company undertook purification test work at Dorfner ANZAPLAN as part of its overall lithium-ion battery suitability test work program. Against all purification methods tested, the spherical graphite (made from Maniry concentrate) was able to be purified to the minimum >99.95% fixed carbon which is required for battery applications. The test work demonstrated the amenability to readily purify Maniry concentrate to meet battery grade specifications. (Refer ASX Release "BlackEarth Graphite Suitable for Lithium-ion Batteries" 14 Feb 2020).

The Scoping Study evaluated five potential processing routes using available information.

- 1. Chemical Purification flowsheet;
- 2. Microwave Assisted Digestion flowsheet;
- 3. Thermal Purification flowsheet;

- 4. HF Free Purification flowsheet; and,
- 5. Caustic Baking flowsheet.

A qualitative assessment of the five processing options was conducted by Wave using the criteria: product recovery, technical risk, environmental footprint, reagent logistics and process safety. The five options were scored using a 10-point scale and weighted criteria.

Based on the outcomes of this Study, the preferred processing route for the BAM facility is the use of the caustic baking technology.

While the process is not as widely used as the HF method of purification, it remains the safest method of processing with key reagents widely available in Europe / worldwide. As a result, the process route also has the lowest operating cost of all purification processes reviewed.



## **Preferred Location**

A number of sites in Germany are currently being considered, including site visits undertaken by Company personnel recently.

The Company's initial assessments indicate the strategic advantages of establishing a plant in Germany remain:

- Proximity to a global hub of new battery giga-factories and electric vehicle producers; the European Union plans to invest billions in the development of giga-factories to support the expected growth in electric vehicles and other clean sources of power and energy
- Infrastructure availability including water, power, key logistic routes; the areas reviewed to date all provide ready availability to competitively priced power and water. First world transport routes provide access to ports (for supply of concentrate material), as well as ready transport of products (SPG and by-product fines) to customers in the region
- Access to critical consumables / reagents and experienced personnel
- Availability of land within industrial areas already zoned for chemical plant development; these areas potentially have significantly less development risks given their status in terms of chemical handling, heritage / community issues and pre-existing common waste treatment facilities
- Attractive financial incentives to encourage battery-related developments
- Low sovereign risk



Figure 4: Battery Giga-factories projected for development in Europe

## Market & Product Pricing

Graphite is a valuable and essential component of lithium-ion batteries and is also used extensively in the production of other batteries and other forms of green energy which are expected to play in an important part of the new World's Green Economic Future.

Spheronised and purified graphite is considered a critical component in the lithium-ion battery supply chain. Based on this Study, Evion believes it has the potential to become a strategic supplier of high-value, high- demand SPG into the European lithium-ion battery / electric vehicle markets.

The Company believes there is a strong market outlook for the sale of SPG into the European / global markets for lithium-ion battery anodes as well as the high-grade fines by-product (recarburiser product) into the cast-iron and steel markets.

The price projections used in this Scoping Study have been determined by assessing industry data, reviewing other projections and relying on the advice of leading graphite traders, experienced in assessing price trends and analysis. As such the Company has adopted a price for SPG of US\$3,900/mt for the first 5 years of operation and US\$4,400/mt thereafter and US\$700/mt for the recarburiser product.

## **Capital Costs**

The general estimating philosophy that was utilised to determine the direct field cost and the indirect cost were a combination of Stochastic (factoring) and Analogy (like for like) and Deterministic (measurement) estimating techniques.

The estimate was based solely upon the block flow diagrams (BFD's) and a priced mechanical equipment list (MEL) as determined by the conceptual design. All attempts have been made to include sufficient equipment and allowances in the list as expected by the layout and similar, operating plants, noting the early stage of the Study and limited engineering progress to date. The estimate for the BAM facility is based on Germany being the location.

Wave classifies the capital cost estimate as conceptual only with an estimate of +/- 30%

Estimated CAPEX Based on Caustic Bake Purification – US\$		
	30mt/pa	15mt/pa
	production	production
Earthworks	\$373,250	\$261,275
Concrete	\$5,543,602	\$3,416,861
Structural Steelwork	\$1,275,574	\$1,032,230
Mechanical / Platework	\$34,702,508	\$21,599,716
Piping	\$3,185,316	\$2,252,526
Electricals	\$4,546,876	\$2,839,369
<b>Controls &amp; Instrumentation</b>	\$5,119,945	\$3,211,966
Architectural (Buildings)	\$7,391,470	\$4,555,815
Indirect Field Costs	\$13,043,664	\$8,213,603
Owners/EPCM Costs	\$15,413,166	\$9,715,396
	\$90,595,371	\$57,098,757
Contingency	\$27,178,611	\$17,129,627
Total	\$117,773,982	\$74,228,384

Table 1: Capital Cost Estimate Summary

## **Operating Costs**

Operating costs were based off the PDC, MEL, capital cost estimate, and benchmark rates from Wave's internal database taken from previous similar projects. Feedstock cost is excluded as it is assumed the project is vertically integrated with the Maniry Graphite Project and it is assumed there is off site waste disposal available.

All operating costs are based in USD with foreign exchange rates of AUD:USD, 1:0.70, and EUR:USD, 1:1.13, used.

Estimated OPEX Based on Caustic Bake Purification - /mt		
	30mt/pa	15mt/pa
	production	production
Reagents	\$367	\$367
Logistics	\$21	\$21
Power	\$515	\$515
Gas	\$11	\$11
Water	\$3	\$3
Diesel	\$0	\$0
Consumable Costs	\$35	\$35
Waste Disposal	\$3	\$3
Total	\$954	\$955
Add Fixed costs	\$373	\$590
	\$1,327	\$1,545

Table 2: OPEX Cost Estimate Summary

## Sensitivity Analyses

An assessment of sensitivities has been undertaken and the effect of a percentage change in Product Pricing, overall OPEX and CAPEX have been detemined and changes measured.

The assessment indicates that the Project is most sensitive in value to material fluctuations in Product Pricing and is least impacted by any change in the Projects Capex.

The below charts outline changes, both favourable and unfavourable, and how these can impact the Projects NPV and IRR.



A 10% reduction in Product Pricing, whilst significant, will still result in the Projects NPV exceeding US\$290m.

A 10% increase in OPEX over the life of the Project will still result in an overall NPV value for the project of US\$320m.



These results are demonstrated below -



#### Sensitivity Analysis – Risk Mitigation

Product Pricing Risk can be effectively manage and to a large degree mitigated by forward selling Product under binding offtake and sales agreements.

The Study has highlighted the level of Product Pricing required to reduce revenue risk and significant market assessment and negotiation will be undertaken with a range of buyers in order to achieve the best possible market price at a minimum of the Projects price parameters. The current price assumptions are based on assessment currently available and assume modest price increases over the terms of the Project.

The Company believes the Projects development offers a unique strategic advantage as it aims to be one of the first wholly Western Owned plants to produce this vital material that is projected to be in extremely high demand in Europe within the next 2-3 years.



## **Appendix 2 – Material Assumptions**

Material assumptions used in the estimation of the production targets and associated financial information relating to the Study discussed in this announcement are set out in Appendix 2, below.

#### Study Status

The production target and financial information in this Study are based on a scoping study level assessment. The Study referred to in this announcement is based on low-level technical and economic assessments and is insufficient to provide assurance of an economic development case at this stage or to provide certainty that the conclusions of the Study will be realised. For all matters relating to the production of graphite concentrates, this Study adopts the assumptions of Evion's Maniry Definitive Feasibility Study (DFS) on the viability of producing graphite concentrates (See Evion ASX Release dated 3 November 2022"BlackEarth completes Positive DFS for Maniry Project").

## Ore Reserve & Mineral Resource Estimate Underpinning the Production Target

The Ore Reserve & Mineral Resource estimate for Maniry declared in November 2022 (see Evion ASX Release dated 3 November 2022"BlackEarth completes Positive DFS for Maniry Project") underpins the production target related to the graphite concentrates that are processed into spherical graphite as contemplated by this Study. This Ore Reserve & Mineral Resource estimate was prepared by a Competent Person in accordance with JORC Code 2012 (the JORC Code). The JORC Code (Clause 49) requires that industrial minerals must be reported "in terms of the mineral or minerals on which the project is to be based and must include the specification of those minerals" and that "it may be necessary, prior to the reporting of a Mineral Resource or Ore Reserve, to take particular account of certain key characteristics or qualities such as likely product specifications, proximity to markets and general product marketability." The likelihood of eventual economic extraction was considered in terms of possible open pit mining, likely product specifications, possible product marketability and potentially favourable logistics to port.

#### **Mining Factors or Assumptions**

This Study is based on processing graphite concentrates that are obtained from the Maniry Graphite Project, as contemplated in the DFS. The Maniry DFS contemplates mining based on an open cut operation utilising conventional drill and blast, load and haul and crusher feed, with mining to be undertaken by experienced mining contractors. It is expected that tailings would be disposed into a purpose-built tailings storage facility.

## **Metallurgical Factors or Assumptions**

The mineral processing parameters for the processing of graphite concentrates into spherical graphite are based on test work completed in February 2020 by a European graphite specialist, Dorfner ANZAPLAN. (See Evion ASX Release dated 14 February 2020). The graphite concentrates used in this test work are considered representative of the type of graphite concentrates that would be produced at Maniry. A process flowsheet has been adopted which is similar to flowsheets that have been adopted by similar spherical graphite operations. For the production of the graphite concentrates, this Study adopts mineral processing parameters of the Maniry

DFS. As part of the DFS, an initial metallurgical program was managed and supervised by Battery Limits, with the test work performed at ALS Metallurgy Services during August 2018 to February 2019. This program included a number of small-scale pilot test runs to identify a preliminary flowsheet and to generate a number of concentrate samples for downstream test work to evaluate its suitability to the downstream graphite industry markets. A subsequent large-scale program by BGRIMM followed, whereby a commercial process flowsheet was finalised and the major process equipment selection was determined. The 60-tonne bulk sample was excavated in September 2019. This large-scale pilot program was carried out during March through to May 2021 (Refer ASX release 9 Aug 2021).

#### Infrastructure and Logistics

The infrastructure required to support the spherical graphite plant includes an upgraded site access road; general earth works, laydowns, hardstands and roadways; administration including first aid room, change house and amenities facilities; light vehicle car parking; workshop and warehouse facility; container storage compounds (as required); power transmission and motor control centre; lighting; site communications; site wide water and sewage services; site water capture; site water containment dam; security facility and security fencing; and other miscellaneous items. The spherical graphite Study is based on siting the plant in an industrial location in Germany, with existing access to high voltage power and water. This Study assumes that spherical graphite product will be bagged into 1t bulk bags and then packed into 40-foot sea containers. The sea containers will be transported to the nearby anode manufacturers. This Study adopts the assumptions of the Maniry DFS for all matters relating to the production of graphite concentrates, including infrastructure and logistics assumptions.

## **Capital Costs**

The capital cost estimate for the spherical graphite facility has been compiled by Wave International based on a high-level preliminary process design, for the design, supply, fabrication, construction and commissioning of the spherical graphite facility. The high-level process flowsheet prepared by Wave International underlie the basis of this estimate. The estimate has been prepared based upon equipment quotations, current in-house (Wave) data from recent projects, industry standard estimating factors and benchmarking against other projects, and excludes duties and taxes, working capital, financing costs, rehabilitation and closure costs. A project contingency allowance of 30% has been applied. The plant cost estimate was compiled based on a date of Q4 2022 with no allowance for escalation to an accuracy of +/-50%. EPCM refers to engineering, procurement and construction management costs. The estimated owner's costs were prepared by Wave. All capital costs relating to the production of graphite concentrates are based on estimates included in the Maniry DFS.

## **Operating Costs**

The operating cost estimate for this Study includes all costs associated with processing, infrastructure, and site-based general and administration costs. The operating cost estimate is presented on an annualised basis and there has been no allowance for initial ramp-up periods or contingencies applied. The operating costs have been developed in by Wave International. The cost of Maniry Graphite concentrates is set at the production costs contemplated by the Maniry DFS. (See Evion ASX Release dated 3 November 2022"BlackEarth completes Positive DFS for Maniry Project"). Wave provided labour force estimates based on industry standards from similar

operations. The estimate for product logistics was estimated by Wave. In all cases, the operating cost estimates exclude exchange rate variations, price escalation and interest charges.

#### **Revenue Factors**

Revenue from the project is derived from the sale of spherical graphite concentrates and recarburiser product. Evion has established the characteristics of expected final products of spherical graphite through test programs undertaken on composite samples from Maniry core. Maniry has received market feedback that graphite concentrates produced to a minimum purity of approximately 99.95% Fixed Carbon will be attractive to potential customers. The characteristics of recarburiser products is based on typical specifications for various graphite and other carbonaceous material used in recarburisers. Product prices are based on discussions with end-users and market professionals and examination of other studies. Risks associated these assumptions used in product pricing include that the product split is not achieved and that the price assumptions are not met by the prevailing markets. Revenue factors relating to the production of graphite concentrates are based on estimates included in the Maniry Graphite DFS.

#### Schedule and Timeframe

The project development schedule is based on a definitive feasibility study without material modification and having funding readily in place to commence construction in 2024. The schedule assumes a likely EPCM implementation strategy. The schedule assumes that all permitting progresses concurrently with the schedule. The project development schedule in this Study is based on the spherical graphite plant becoming operational post the development and commissioning of the Maniry Graphite Project.

#### Market assessment

Spherical graphite is considered a key growth market, as this product is utilised in the manufacture of anode material of the lithium-ion battery. There is perceived to be a current market shortfall in spherical graphite supply, and as such prices have risen. This is understood from various market analyst reports. Recarburising is the process used to increase the carbon content of some cast-irons and steels. It involves heating in the presence of a carbon bearing material so that carbon is absorbed by the metal. Graphite is highly suitable for use as a recarburiser because it comprises pure carbon and is soluble in the molten metal. The quantity of graphite used depends on the carbon content of the original metal and the recarburiser itself, as well as the type of product required and the type of furnace being used. Based on discussions with end-users and market professionals and examination of other studies, Evion considers it reasonable to assume that there will be an adequate market for the recarburiser product it contemplates producing in this Study. Market factors relating to the production of graphite concentrates are based on estimates included in the Maniry Graphite DFS.

#### Funding

To achieve the range of outcomes indicated in the Study, funding in the range of US\$75–120M will likely be required for capital works. It is anticipated that the finance will be sourced through a combination of equity and debt instruments from existing shareholders, new equity investment and debt providers. The Company has sufficient cash on hand at the date of this announcement to undertake the next stage of planned work programs, including continued metallurgical testing, the finalisation of site location and preliminary discussions with potential offtake partners.

Evion's Board believes that there is a reasonable basis to assume that funding will be available to complete all feasibility studies and finance the pre-production activities necessary to commence production on the following basis:

- Evion's Board and executive team have a strong financing track record in developing resources projects;
- Evion has a demonstrated proven ability to attract new capital;
- Evion's Board believes this Study demonstrates the project's strong potential to deliver favourable economic return; and
- Other companies at a similar stage in development have been able to raise similar amounts of capital in recent capital raisings

## Economic

A discount rate of 8% has been used for financial modelling. This number was selected as a generic cost of capital and considered a prudent and suitable discount rate for project funding and economic forecasts. The model has been run as a life of mine model and includes sustaining capital and closure costs. The Study outcome was tested for key financial inputs including: basket price, capital and operating costs and US/AU exchange rate. All of these inputs were tested for variations of+/- 10%.

#### **Exchange Rate**

The exchange rates for the reporting of the results from this Study are AU1.00 = US and EUR1.00 = US.

#### Social

This Study contemplates developing the BAM plant in an existing industrial precinct situated in Germany. A potential, preferred location has been identified. Evion has commenced meetings with potential stakeholders within these areas, with further meetings expected to occur in the near term. There are no known community issues that Evion has identified as being a likely material impediment to developing the project. Social factors relating to the production of graphite concentrates are based on estimates included in the Maniry Graphite DFS.

#### Other

There are several other material risks to this project including product price, competition, regulatory approval, social licence, scheduling and other risks typical of projects of similar scale.

#### Audits or reviews

This Study was undertaken by independent engineering firm Wave International and internally reviewed by Evion. No material issues were identified by the reviewers. All Study inputs were prepared by Competent Persons identified in this announcement.

## JORC Code, 2012 Edition – Table 1

#### Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	Commentary
Sampling techniques	Drilling
	the drill hole database only consists of diamond drill holes
	• sampling consists of 2m composite samples of quarter core with breaks at lithological discontinuities - typical 3-5Kg
	samples are cut using a diamond blade core saw
	duplicate samples are collected every 20th sample for QAQC purposes
	standards (CRMs) are inserted every 20th sample for QAQC purposes
	sampling is considered to be comprehensive and representative
	• quarter cores are sent for analysis, the remaining core material is retained and stored in EVG's secure core shed
	<ul> <li>metallurgical samples were obtained from diamond drilling using ½ cores. A split of crushed sample was used for metallurgical test work</li> </ul>
	• downstream testwork was based on a split sample taken from concentrate produced in previous metallurgical testwork program which results were reported on 18th December 2018
	Trenching
	• trenches are dug perpendicular to the strike of mineralised units with a JCB backhoe loader
	• trained geologists log and systematically sample the trenches using a rock hammer at 2m intervals
	CRMs are inserted ~every 20th sample for QAQC purposes
	Bulk Sample – 60 tonnes
	A 60t bulk sample, was taken in the same location in the east strata of the Razafy deposit (digging site centred on 487,040mE,
	7,285,860mN). This sample was taken from the same location as the previous 250 kgs Stage 1 Pilot Test Program as announced
	on 26 February 2020.

Criteria	Commentary
)	The excavation location was chosen between drillholes MNDD047 and MNDD048, with trench MNT012 confirming the location of the strata and carbon grades, in an area where the mineralisation is thick and the base of oxidation close to the topographica surface
Drilling techniques	<ul> <li>diamond drilling only</li> <li>core size is HQ and NQ typically in 0.5-1.5m runs</li> <li>core from a select number of drill holes are orientated</li> </ul>
Drill sample recovery	<ul> <li>core recovery is routinely recorded every metre by trained geologists</li> <li>no bias or relationship has been observed between recovery and grade</li> <li>recovery is typically +80% within weathered rock, and +95% in fresh rock</li> </ul>
Logging	Drilling
	<ul> <li>all drill holes are logged by qualified and experienced geologists</li> <li>logging includes descriptions of geotechnical, mineralisation, structural and lithological aspects of the core and is digitally recorded using an industry standard code system</li> <li>cores are systematically photographed</li> <li>the data collected offers sufficient detail for the purpose of interpretation and further studies</li> </ul>
	Trenching
	<ul> <li>all trenches are logged by qualified and experienced geologists</li> <li>logging includes descriptions of mineralisation, structural and lithological aspects of the encountered rocks and is digitally recorded using an industry standard code system</li> <li>the data collected offers sufficient detail for the purpose of interpretation and further studies</li> </ul>
Sub-sampling techniques	Drilling
and sample preparation	quarter cores are cut using a diamond core saw and collected for assay
	• 2 metre composite sampling is deemed to be comprehensive and representative for the style/type of mineralisation under investigation
	duplicate samples are taken (remaining quarter core) every 20th sample

Criteria	Commentary
	• sample preparation from quarter core to pulp is undertaken at EVG's sample preparation facility in Antananarivo (former Intertek-Genalysis facility)
	Trenching
	<ul> <li>the base of the trench is chipped to obtain a representative sample over 2m intervals. Although the sampling technique is not ideal, the technique is deemed satisfactory for this exploratory phase of work</li> <li>QAQC measured are deemed satisfactory for this type of sampling and exploratory phase of work</li> <li>the sample size (3kg) is deemed satisfactory to the grain size of the material being sampled</li> <li>sample preparation from 3Kg chip sample to pulp is undertaken at EVG's sample preparation facility in Antananarivo</li> <li>Bulk Samples-60 tonnes</li> <li>a dense grid sampling (0.5mx1m lines, for a total of 39 samples of 1kg) covering the complete excavation area was completed mid depth of the excavation of the 60t bulk sample for close space analysis of the mineralisation continuity and full control of the quality of the excavated material. The samples were prepared at EVG's Antananarivo preparation laboratory for analysis at Intertek Perth</li> </ul>
	<ul> <li>in both instances, portable XRF measurements were completed during excavation in parallel to the sampling</li> </ul>
Quality of assay data a laboratory tests	<ul> <li>and Drilling &amp; Trenching</li> <li>assaying is undertaken by Intertek Genalysis in Perth (Aus)</li> <li>samples are pulverised to 75 microns, roasted to 420oC and digested with a weak acid. Final analysis is undertaken by CS analyser (Code: C73/CSA)</li> <li>standards and duplicates (duplicates only for core, not for trench samples) are inserted every 20th sample by the EVG technical team in addition to the internal QAQC from the laboratory. No issues been observed with QAQC</li> </ul>
	<ul> <li>Bulk Sample – 60tonnes</li> <li>for the 60t bulk sample, the 39 samples of the dense grid sampling were analysed at Intertek Perth. The 60t bulk sample was also analysed by BGRIMM as part of the metallurgical testing</li> </ul>
	<ul> <li>Metallurgical Tests - Bulk Sample</li> <li>metallurgical work was undertaken by BGRIMM technology Group in Beijing. The metallurgical test work comprised.</li> <li>Head assay, mineralogy and comminution testing</li> <li>Primary milling optimisation rougher flotation</li> </ul>

Criteria	Commentary
	<ul> <li>Cleaner flotation and re grind optimisation</li> <li>Locked cycle flotation test</li> <li>Concentrate assay and sizing</li> <li>Industry standard test methods and analytical techniques have been employed</li> </ul>
Verification of sampl and assaying	<ul> <li>significant intersections have been verified by alternative company personnel</li> <li>no twin holes have been completed</li> <li>all data is recorded digitally using a standard logging system and files are stored in an industry standard database</li> </ul>
Location of data poir	<ul> <li>Drilling         <ul> <li>Razafy: all collars have been located using a DGPS (accurate to 1cm) Projection and grid systems used: UTM (WGS84 Z38S The down hole azimuth and dip is recorded using a Magshot down hole instrument (accurate to 1deg)</li> </ul> </li> <li>Trenching         <ul> <li>all XYZ surveying is collected using a handheld Garmin GPS accurate to ±4m</li> <li>Projection and Grid system used: UTM (WGS84) Z38S</li> </ul> </li> </ul>
	<ul> <li>Bulk Sample – 60 tonnes</li> <li>the limits of the 60t bulk sample excavation were surveyed using a GPS handheld device, as were the end points of the dense grid sampling lines covering the excavation site at mid-depth</li> </ul>
Data spacing and distribution	<ul> <li>Drilling</li> <li>the drill hole grid spacing is 100m along strike by 30m across strike at Razafy.</li> <li>the drill hole spacing allowed to follow the graphitic mineralisation outlines from section to section and down dip</li> <li>samples have been composited to 2m length within the mineralised lenses interpreted to complete the statistical analysis, variography and estimation</li> </ul>
	<ul> <li>Trenching</li> <li>the geologist in charge of the program systematically samples all visible mineralised units as well as the lithologies either side of these</li> <li>this data is not thought to be appropriate for resource estimation purposes</li> <li>no sample compositing has been applied.</li> </ul>

Criteria	Commentary
Orientation of data in relation to geological structure	<ul> <li>Drilling</li> <li>the drilling grid matches the strike of the orebody</li> <li>the orientation of the drilling is not expected to introduce sampling bias as drill holes intersect the mineralisation at a sufficient angle to the dip of the orebody, in addition, the mineralisation envelopes are interpreted in three-dimensions</li> <li>Trenching</li> </ul>
	• the trenches are oriented perpendicular to the perceived orientation of the outcropping mineralisation, but since sampling is two-dimensional and not perpendicular to the dip of mineralisation, reported intercepts will be wider than the true width of the mineralised unit
	Bulk Sample – 60 tonnes
	• the 60t bulk sample was excavated within an area of approximately 7m along strike by 3m across strike
Sample security	Drilling
	<ul> <li>samples are cut and sampled on site before being transported to EVG's sample preparation facility in Antananarivo</li> <li>sample pulps are freighted by plane to Intertek Genalysis in Perth (Aus) for assaying</li> <li>the remaining core samples are kept in a secure facility adjacent to EVG's offices in Antananarivo</li> </ul>
	Trenching
	<ul> <li>samples are packaged and stored in secure storage from time of gathering to sample preparation</li> </ul>
	Bulk Sample – 60 tonnes
	<ul> <li>the material was bagged on site into bulk bags, and loaded on trucks</li> <li>the 60t bulk sample was trucked to the port of Toliara, loaded in a container, shipped to China and delivered to BGRIMM</li> </ul>
Audits or reviews	sampling procedures has been reviewed by external auditors Sigma Blue Pty. Ltd. and OMNI GeoX Pty. Ltd, with site visits a the beginning of the programmes

## Section 2 Reporting of Exploration Results

(Criteria listed in section 1 also apply to this section.)

Criteria	Commentary
Mineral tenement and land tenure status	<ul> <li>work was undertaken upon permits 5391, 5393, 5394, 25094, 25605, 39751</li> <li>the tenements are located within the inland South West of Madagascar</li> <li>tenements are held 100% by BlackEarth Madagascar SARL, a wholly owned subsidiary of Evion Group NL through Madagascar Graphite Ltd</li> <li>no overriding royalties are in place</li> <li>there is no native title agreement required</li> <li>tenure does not coincide with any historical sites or national parkland</li> <li>tenements are currently secure and in good standing</li> </ul>
Explorat-ion done by other parties	<ul> <li>regional mapping by BRGM</li> <li>historical diamond drilling and trenching by Malagasy Minerals. Ltd. (2014–2016)</li> </ul>
Geology	The project overlies a prominent 20km wide zone consisting of a folded assemblage of graphite and quartz-feldspar schists, quartzite and marble units, with lesser intercalated amphibolite and leucogneiss. This zone, termed the Ampanihy Belt is a core component of the Neoproterozoic Graphite System. The belt is interpreted as a ductile shear zone accreted from rocks of volcanic and sedimentary origins
Drillhole Information	refer to Section 1
Data aggregation methods	<ul> <li>cut offs of 5%, 10% 15% and 20% graphitic carbon have been used for aggregated reported intercepts</li> <li>no cutting of high grades is applied</li> <li>all trench samples represent a 2m interval length</li> <li>metallurgical sample bulk samples were composited and subject to two stage crushing to a nominal -3.35mm and mixed to form a master composite. The master composite was then rotary split into test work charges.</li> </ul>
Relationship between mineral-isation widths and intercept lengths	<ul> <li>sampling does not occur perpendicular to the dip of mineralisation and therefore is not truly representative of the true width of the mineralised unit</li> <li>the dip of the mineralised units is known from previous drilling and/or the trenching logging</li> </ul>

Criteria	Commentary
	the dip of the mineralised unit is shown within the diagrams
Diagrams	refer to body of text above for diagrams and tabulated intercepts when applicable
Balanced reporting	<ul> <li>all significant results that are material to the project have been reported</li> <li>any data that has not been released has been deemed insignificant</li> </ul>
Other substantive exploration data	no other exploration related data has been collected that requires reporting
Further work	• future exploration work at Maniry is likely to include further mapping, trenching and drilling. Additional downstream processing including purification of spheronised graphite products for Li-ion battery anodes.

#### Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	Commentary
Database integrity	<ul> <li>the drill hole database has been loaded in an industry standard database</li> <li>validation for duplicates, missing data, outliers, erroneous intervals is completed before proceeding to the interpretation and analysis</li> </ul>
Site visits	<ul> <li>Competent Person for the resource estimate visited the site during the drilling programme in March-April 2018</li> <li>drilling, sampling and sample preparation procedures were reviewed and are considered of industry standard</li> </ul>
Geological interpretation	Razafy
	• the confidence in the geological interpretation of the graphitic lenses is considered robust for the purpose of estimating and reporting Indicated and Inferred resource
	• graphite mineralisation hosted within graphitic schists and gneiss, visibly recognizable from the background rock
	the complete extent of the two main lenses outcrop and can be followed by surface mapping
	trenches have been used with success in early exploration stages to confirm the strike continuity
	• no major faulting or other structural disruption has been mapped in the deposit area and the location of the drilling
	intercepts of the graphitic mineralisation confirms the position of the lenses anticipated from the trenches observed
	• the boundary between graphitic schists and gneiss and the surrounding material is usually sharp with TGC below 0.5% in the
	background material changing to +3% grades in the graphitic lenses, leaving few options to shift the boundaries position
	when interpreting the mineralised body
	Razafy mineralisation envelopes were interpreted at a nominal +3% TGC cut-off grade
	only rare occurrences of non-mineralised material are included in the two main lenses
	logged graphitic rich zones correspond extremely well with TGC assay results
	no alternative interpretation has been considered at present
	• the weathered horizon (oxide) can easily be interpreted from the sulphur depression observed in the assay data. The oxide
	horizon is approximately 20m thick. The transition zone is usually of very limited thickness when present
	logged graphitic rich zones correspond extremely well with TGC assay results
	no alternative interpretation has been considered at present
	• the base of the weathered horizons- oxide & transition- can be interpreted from the sharp change in sulphur grades

Criteria	Commentary
Dimensions	Razafy
	• the Mineral Resource encompasses the Razafy deposit and a new prospect named Razafy East
	• the Razafy deposit comprises two major lenses – East Main d West Main lenses-, and four minor lenses adjacent to the main zone
	• the solids interpreting the two main zones are 1450m long with a maximum plan width of 65m for the East main lens, and 60m for the West main lens in the south part of the deposit
	• the two main lenses extend 155m depth below surface and define the lowest depth below surface at which a resource has been estimated
	• the Razafy block model extents 1625m along strike, 900m across strike and 200m depth to cover the East Razafy prospect area
Estimation and modellin	g Razafy
techniques	<ul> <li>TGC and sulphur have been estimated by ordinary kriging using 140m along strike by 50m down dip by 12m across strike search ellipse which defines the outmost distances to which blocks can be extrapolated from drill holes</li> <li>drill sections are spaced regularly at a 100m (with the exception of the first northern section which is 200m away from the</li> </ul>
	second section), with dril lholes spaced at 30m across sections
	• kriging parameters for both TGC and sulphur were obtained from modelling the directional variograms (normal variograms) for the two main lenses
	nugget values are 20% of the total sill for both elements
	• the grade estimation was completed using Geovia GEMS mining software with partial blocks to honour the volume of the grade envelope solids
	• the block model is based on 25m along strike by 5m across strike by 5m Z, which is considered adequate given the current drill spacing of 100m section lines by 30m spacing
	mineralised envelopes were used as hard boundaries during interpolation
	• the base of oxide was used as a hard boundary for the sulphur estimation but as a soft boundary for the TGC estimation
	• no top-cut measure was used as there is no evidence of outliers. The maximum TGC value for the 2m sample assays is 15%
	• the grade estimates -TGC & sulphur- were validated visually and statistically and honour spatially and statistically the input data
	no previous estimate exists for this deposit

Criteria	Commentary
Moisture	the resource is reported for Razafy on a dry tonnage basis
Cut-off parameters	<ul> <li>the resource is reported for Razafy at a 3% TGC cut-off grade. These cut-off grades are in line with other reported Mineral Resources in East Africa</li> <li>a Scoping Study has been completed on Razafy material only</li> </ul>
Mining factors or assumptions	• based on the orientation, thickness and depth to which the graphitic lenses have been modeled and their estimated TGC, the potential mining method is considered to be open pit mining for both deposits
Metallurgical factors or assumptions	<b>Spheronised – Purified Graphite Test Work</b> Results contained within this Scoping Study reflect test work undertaken by Dorfner ANZAPLAN (Germany) in 2019-20 (reporter ASX February 2020) and 2022 (reported ASX Dec 2022)
	<ul> <li>Razafy (Source of Concentrate)</li> <li>metallurgical testwork program has been undertaken on drill core samples taken from a drill program completed in 2018. A total of 20 diamond drill holes were sampled, to create representative composite samples</li> <li>sample preparation was undertaken by ALS Metallurgy in Perth WA. BatteryLimits</li> <li>sub samples (2x 1 kg) were issued to BGRIMM technology group for initial confirmatory flotation testwork. The samples were stage ground in a rod mill to 100% passing 1mm. The samples underwent rougher flotation and up to 6 stages of regrind polishing and 9 stages of cleaner flotation. multiple stages of cleaning (up to 6), with recleaning. The results indicated that high grade (94% TGC) concentrates can be produced at a recovery of 87% in open circuit</li> </ul>
Environmental factors or assumptions	• it is assumed that the downstream processing of Maniry concentrate to spheronised purified product, will have minimal environmental impact. This is based upon discussions with local (German) authorities and Wave International (engineers) who included facilities to treat any waste products within the Scoping Study to meet appropriate standards.
Bulk density	<ul> <li>Razafy</li> <li>the bulk density used to report the Razafy Mineral Resource is based on 19 measurements made by the water displacement method by the Intertek Perth laboratory</li> <li>a 2.07t/m3 value was used for the oxide material and 2.17t/m3 for the fresh material</li> </ul>
Classification	Razafy

Criteria	Commentary
)	<ul> <li>the two main lenses are continuous over the strike of the deposit. They can be followed on surface by mapping without interruption and are not disrupted by faulting</li> <li>trenching completed during the early exploration stages, but not used in the resource estimate, confirm the location at surface of the thickness of the mineralisation estimated by the model</li> <li>with a 100m drill section spacing and search ellipse of 140mx50mx12m, extrapolation of blocks is limited</li> <li>all minor lenses, including the East Razafy prospect have been classified as Inferred material</li> <li>for the East and West main lenses, the kriging slope of regression obtained for the TGC estimate was used to separate Indicated from Inferred resource at depth. Blocks with a slope of regression greater than 0.5 were classified as Indicated, the other blocks were classified as Inferred</li> <li>the classification is based on a high degree of geological understanding of the mineralisation occurrence and spatial distribution, correlated by systematic drilling information with limited extrapolation</li> <li>the Mineral Resource estimate appropriately reflects the view of the Competent Person</li> </ul>
Audits or reviews	<ul> <li>An inhouse audit was undertaken by EVG on the results of this Scoping Study</li> <li>Audits were undertaken for the Razafy Mineral Resource estimates as part of the Company's Maniry DFS (ASX Nov 2022)</li> </ul>
Discussion of relative accuracy/ confidence	<ul> <li>This Scoping Study has been completed to +/- 50% and includes a contingency of 30% as outlined in the attached report</li> <li>the relative accuracy of the Mineral Resource estimates is reflected in the reporting of the resources as per the guidelines of the JORC Code 2012 edition</li> <li>no other estimation method or geostatistical assessment has been performed</li> <li>the Mineral Resource estimates of the Razafy deposit is a global estimate of tonnes and grades</li> <li>tonnages and grades above the nominated cut-off grades applied on TGC are provided in the body of the announcement</li> <li>the contained graphite values were calculated by multiplying the TGC grades (%) by the estimated tonnage on a block by block basis</li> </ul>