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GreenRoc Strategic Materials Plc
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GreenRoc Strategic Materials Plc
(formerly GreenRoc Mining Plc)
("GreenRoc" or the "Company")

Amitsoq Update
Significant Increase in Anode Plant NPV

GreenRoc Strategic Materials plc (AIM: GROC), a company focused on the development of critical mineral projects in Greenland, is pleased to announce significant improvements to its previously published Preliminary Feasibility Study (the "Feasibility Study") regarding the establishment of a downstream plant to produce graphite active anode material from graphite concentrate produced from the Company's planned graphite mine at Amitsoq, South Greenland.

In its RNS of 7 May 2024 announcing the results of the Feasibility Study, the Company flagged that further improvements to process design would be investigated in a second stage, commencing shortly. Those further investigations are now complete.

These updates to the existing Feasibility Study were carried out by SLR Consulting Ltd ("SLR"), an independent UK consulting firm with considerable global expertise in the field of mining and mineral processing and the original author of the Feasibility Study, and were completed with a cost accuracy to AACE Class 4 ("AACE Class 4 Estimate"). As previously announced, the Feasibility Study was supported by a ca. £250k grant from Innovate UK's Automotive Transformation Fund.

Highlights

- Improvements to process design, notably surrounding onsite production of nitrogen and de-ionised water, have resulted in:
  - relatively modest (~6 per cent) overall increase in Capex from US$321M to US$340M (AACE Class 4 Estimate);
  - significant (~18 per cent) decrease in Opex from US$2,211 to US$1,872 per tonne of coated spherical purified graphite ("CSPG"); and
  - an overall ~14 per cent increase in after-tax NPV8 for anode plant from US$545M to US$621M and increase in IRR from 25.3% to 26.5%.

- Updated Feasibility Study has also assessed an alternative, alkaline purification method using sodium hydroxide (NaOH) instead of hydrofluoric acid ("HF") with the following preliminary results:
  - Capex higher at US$395M (Cf. US$340M for HF method);
  - However Opex lower at US$1,662 per tonne (Cf. US$1,872 per tonne for HF method).
  - Further test work will be undertaken to further refine the NaOH method.

GreenRoc's CEO, Stefan Bernstein, commented:
"I am very pleased with the outcome of the updated Feasibility Study. The technical improvements made have not only resulted in a significant improvement in the after-tax NPV of some US$76M or ca 14% but some of the modifications made, in particular in respect of the onsite production of key consumables like nitrogen and de-ionised water, will also make our project more robust and self sufficient

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"It is also good to see that a more environmentally friendly alkaline purification method can be used without compromising the existing and very positive business case for our future anode plant. Over the coming time, we will conduct further work in the lab to refine the alkaline purification method."

Preliminary Feasibility Study ("FS") Update - Comparison Table

Category	May 2024 FS	July 2024 FS Update
Pre-Tax NPV at 8% discount rate (NPV_8)	US$837M	US$942M
Pre-Tax IRR	33.8%	35.4%
After-tax NPV_8	US$545M	US$621M
After-tax IRR	25.3%	26.5%
Total gross revenue	US$6.5Bn	US$6.5Bn
Total gross profit	US$2.7Bn	US$3.1Bn
Years of operation	22	22
Capital payback period	4 years from start of production	4 years from start of production
Initial Capex (inc. 25% contingency)	US$321M	US$340m[1]
Average Opex (per tonne of CPSG)	US$2,211	US$1,872
Average annual production of graphite concentrate feedstock at 95% graphitic carbon (C(g)) at Amitsoq mine	80,000t	80,000t
Average annual production of active anode material (CSPG).	39,700t	39,700t

[1] AACE Class 4 Estimate

The results set out above, both for the Feasibility Study announced on 7 May 2024 and for the updated Feasibility Study announced today, are based on the industry-standard hydrofluoric acid purification ("HF Method"). As mentioned above, an alternative purification methodology using sodium hydroxide ("NaOH Method") has also been assessed, however further test work is required.

Further Details

While the overall concepts and processes set out in the initial Feasibility Study published by the Company on 7 May 2024 are unchanged, this updated study incorporates a series of improvements. The most important of these are the onsite production of de-ionised water and the construction of a plant for the production of nitrogen. While these modifications result in an overall increase in Capex from US$321M (May 2024) to US$340M (July 2024), they also result in a significant decrease in Opex from US$2,211 (May 2024) to US$1,872 (July 2024) per tonne of CSPG. Consequently, the after-tax NPV8 has increased from US$545M with an IRR of 25.3% (May 2024) to US$621M with an IRR of 26.5% (July 2024).

Nitrogen is used in the final stages of CSPG processing when the newly coated spherical purified graphite is baked at up to 1,300°C in an oxygen-free, inert atmosphere. The incorporation of onsite plants for both nitrogen generation and de-ionised water will not only provide considerable cost savings during production but will also serve to make the anode plant less reliant on price fluctuations and on the delivery of these key consumables.

The updated Feasibility Study also assesses the use of an alternative purification method using sodium hydroxide (NaOH) instead of the very efficient, but more hazardous and expensive, hydrofluoric acid. The NaOH purification technique employs a process involving a two-stage 'cold-baking' of the CSPG in NaOH at 250-300°C with subsequent leaching using hydrochloric and/or sulphuric acid. As the NaOH Method requires two stages, rather than the one stage required in the HF Method, the Capex required is higher at US$395M compared to US$340M for the HF Method. However, the Opex is significantly lower at US$1,662 per tonne compared to US$1,872 per tonne for the HF Method. The overall after-tax NPV8 for the NaOH Method is US$601M with an IRR of 23.7%. These figures are purely indicative at this stage and subject to

US$901/t with an IRR of 25.7%. These figures are purely indicative at this stage and subject to further test work, which will be conducted in due course, to refine the alkaline purification method.

The next milestone with regard to the CSPG production plant is identifying the preferred site for the plant and setting up a pilot-scale processing plant in order to be able to commence the qualification process with potential customers, leading to the signing of off-take agreements with key participants in the global battery industry.

Forward Looking Statements

This announcement contains forward-looking statements relating to expected or anticipated future events and anticipated results that are forward-looking in nature and, as a result, are subject to certain risks and uncertainties, such as general economic, market and business conditions, competition for qualified staff, the regulatory process and actions, technical issues, new legislation, uncertainties resulting from potential delays or changes in plans, uncertainties resulting from working in a new political jurisdiction, uncertainties regarding the results of exploration, uncertainties regarding the timing and granting of prospecting rights, uncertainties regarding the timing and granting of regulatory and other third party consents and approvals, uncertainties regarding the Company's or any third party's ability to execute and implement future plans, and the occurrence of unexpected events.

Actual results achieved may vary from the information provided herein as a result of numerous known and unknown risks and uncertainties and other factors.

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About GreenRoc

GreenRoc Strategic Materials Plc is an AIM-quoted company led by a group of highly experienced industry professionals.

GreenRoc is developing two significant critical raw material projects in Greenland:

- ***The Amitsoq Graphite Project**, one of the highest-grade graphite deposits in the world with a combined Measured, Indicated and Inferred JORC Resource of 23.05 million tonnes (Mt) at an average grade of 20.41% graphite, giving a total graphite content of 4.71 Mt; and*

- ***The Thule Black Sands Ilmenite Project** ('TBS'), which has an initial Mineral Resource of 19Mt at 43.6% Total Heavy Minerals with an in-situ ilmenite grade of 8.9%.*

Key Points about Amitsoq, GreenRoc's Flagship Asset

1. *Amitsoq is located in the Nanortalik region of southern Greenland, in year-round ice-free waters and on the same latitude as far northern Scotland.*
2. *GreenRoc is focused on fast-tracking the development of Amitsoq into a producing mine in the shortest possible timeframe to meet critical demand from Electric Vehicle ('EV') manufacturers in Europe and North America for new, high grade and conflict-free sources of graphite.*
3. *The Amitsoq Island Deposit has a total inferred, indicated and measured JORC Resource of*

23.05 million tonnes (Mt) at an average grade of 20.41% Graphitic Carbon ("C(g)"), giving a total graphite content of 4.71 Mt. This makes Amitsoq one of the highest-grade graphite projects in the world.

4. *Significant further resource upside exists at Amitsoq as the Amitsoq Island Deposit is open in at least two directions, with potential for considerable further expansion via the similarly high-grade Kalaaq Mainland Deposit as well as a series of other high-grade targets within GreenRoc's licence package.*
5. *The Amitsoq Island Deposit was in small-scale production about 100 years ago, and there remains considerable underground mine development in place from that time, which will be of considerable benefit to GreenRoc in the mine construction phase.*
6. *In GreenRoc's test work programmes:*
   a. *Micronisation and spheronisation test work has proven that Amitsoq graphite can be readily upgraded to high-grade, anode-quality graphite, known as high purity spherical graphite or cSPG, a critical component in the Li-ion battery of an EV.*
   b. *Amitsoq spheronised graphite has achieved higher than 99.95% purity with relatively little energy input and processing and using a milder alkaline purification method compared to the industry standard hydrofluoric acid, boding well for future production costs and sustainability commitments.*
   c. *Electrochemical testing of Amitsoq graphite anode material within a test Li-ion battery cell has shown that it performs very well, in part due to its good crystallinity.*
7. *The results of a Preliminary Economic Assessment (or PEA) for Amitsoq released on 31 October 2023 give a post-tax NPV8 for the Project of US$179M, an IRR of 26.7% and capex estimated at US$131M (including a 25% contingency). These figures solely relate to the economics of a mining and primary processing operation in South Greenland and do not take into account any potential upside from a downstream processing operation which GreenRoc intends to establish in Europe or the USA.*
8. *In relation to that downstream business, GreenRoc has now completed a Feasibility Study (reported herein and in RNS of May 7, 2024) into the establishment of a graphite spheronisation processing plant to produce cSPG from graphite concentrate delivered from Amitsoq. This Feasibility Study, has been part-financed by a grant of approximately £250,000 from the UK's Automotive Transformation Fund.*
9. *Following a detailed evaluation process, the European Raw Materials Alliance has expressed its support of GreenRoc and its Amitsoq graphite project, stating that: "GreenRoc's graphite resource is of global importance and, together with the Company's strategy, will enable the European Union to achieve a certain level of independence for the electrical vehicle supply chain. ERMA has approved the Amitsoq Graphite project and will engage to support its development and financing to produce these critical raw materials for the benefit of the European Union goals." (see RNS dated 8 February 2023).*
10. *The Company recently received a Letter of Interest from the US EXIM Bank with an indication to finance up to US$ 3.5M of the Company's work program on the Amitsoq mine and the downstream cSPG plant (see RNS of April 15, 2024).*

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