ASX Release

27 February 2025

Water Treatment Circuit to Deliver Low-Cost PSG

Recent test results confirm technological readiness level to enable Renascor to advance to detailed engineering of PSG demonstration facility

- Recently completed tests have confirmed the effectiveness of water treatment in recycling reagents and treating process water from Renascor's hydrofluoric acid (**HF**) free purification process.
- Following large-scale locked-cycle trials that produced battery-grade graphite (99.99% Carbon) using Renascor's purification flow-sheet, Renascor has completed tests on process water streams from the caustic roast and leach circuits to confirm the suitability of Renascor's proposed water treatment circuit for its purification process.
- Assays from process streams produced from the trials measured within the acceptable range to permit the water treatment circuit to effectively recycle reagents for re-use in the caustic roast circuit and to treat process water from the leach circuits.
- The results support Renascor's HF-free purification process as offering a competitive ex-China alternative for battery-grade graphite by avoiding higher costs associated with environmental handling and disposal of HF and by using lower cost reagents and reducing overall reagent and water consumption through the water treatment circuit.
- The results also confirm the technological readiness of Renascor's planned Purified Spherical Graphite (**PSG**) demonstration facility to advance to detailed engineering, with Renascor having awarded the detailed design contracts for purification and water treatment.
- Commissioning of the PSG demonstration facility is expected to commence in Q3 2025, commencing with the water treatment circuit. Pending timely receipt of equipment from overseas suppliers, full-scale demonstration plant commissioning is scheduled to commence in Q4 2025.

For personal use only

For personal use only

Renascor Resources Limited (ASX: RNU) (**Renascor**) is pleased to announce the completion of tests that have confirmed the effectiveness of water treatment in recycling reagents and treating process water in Renascor's hydrofluoric acid (**HF**) free purification process.

Assays from all process water streams produced from the trial were within the acceptable range to permit the recycling of reagents in the caustic roast circuit and the treatment of processed water within the acidic leach circuits.

In addition to supporting Renascor's HF-free purification process as a competitive ex-China alternative for battery-grade graphite, the results confirm the technological readiness of Renascor's planned Purified Spherical Graphite (**PSG**) demonstration facility to advance to detailed engineering, with Renascor having awarded the detailed design contracts for purification and water treatment.

Commenting, Renascor's Managing Director, David Christensen stated:

> *"The competitiveness of Renascor's BAM Project is based in part of the quality of the Siviour Graphite Deposit, which has the potential to be amongst the world's lowest cost sources of graphite concentrates.*
>
> *We believe our comprehensive work in advancing the technological readiness of our purification process, including the test results announced today, can deliver a further competitive advantage to Renascor and establish a viable ex-China source for battery-grade graphite for lithium-ion batteries.*
>
> *We look forward to further demonstrating the effectiveness of our downstream operation as we advance into construction and commissioning of our demonstration plant."*

Discussion

Renascor is developing a vertically integrated Battery Anode Material (**BAM**) operation in South Australia. The BAM project comprises: (i) an upstream graphite mining and processing operation, and (ii) a downstream BAM facility in which graphite concentrate will be converted into PSG before being exported to lithium-ion battery anode manufacturers (see Figure 1).

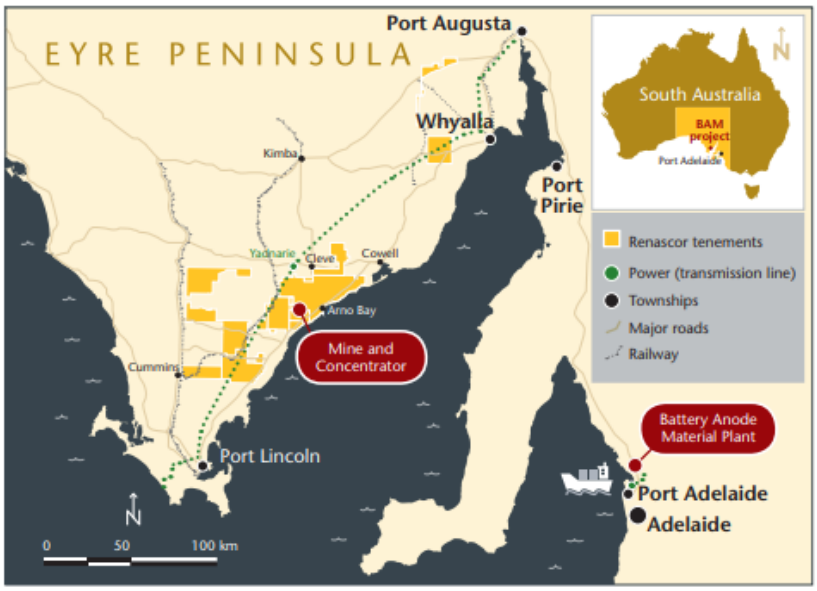

Figure 1. *Renascor's BAM project, showing the locations of the planned mine and concentrator and the BAM facility*

The BAM project is in the advanced development stage, with Renascor having completed a definitive feasibility study[1] and having received its approval of its Program for Environment Protection and Rehabilitation for the upstream graphite mine and concentrator[2].

Renascor is currently undertaking a competitive Early Contractor Involvement (**ECI**) process on the upstream mineral processing plant and non-processing infrastructure[3] and has commenced long-lead procurement and on site development activities, including upgrades to the electrical infrastructure to connect SA Power Network's existing electricity grid connection to the proposed mine site[4].

Downstream PSG facility

Concurrent with the development of the upstream mining operation, Renascor is advancing the downstream PSG facility to offer a commercially viable alternative to the production of PSG by Chinese companies, which currently produce the vast majority of the world's supply of PSG for use in lithium-ion battery anodes [5].

Renascor intends to develop a globally competitive PSG operation by integrating its projected low-cost upstream mining operation (Renascor has amongst the lowest projected operating cost of any graphite development globally[6]) with a purpose-built PSG facility designed to upgrade Siviour graphite concentrates for use in lithium-ion battery anodes.

Purification to Battery-Grade

Chinese PSG facilities generally use HF as the primary reagent in the purification process[7]. Whilst HF is effective in reaching battery-grade purity specifications, it is a highly hazardous substance, mandating strict occupational health, safety and regulatory standards and strict controls for transporting, processing and disposal. Conforming with these standards and controls can require significant additional project costs.

Renascor has developed an HF-free purification process that combines sulfuric acid leaching with a low temperature caustic roast.

Renascor considers that its HF-free process offers potential advantages over conventional HF processing by avoiding higher environmental handling costs associated with using HF, reducing overall reagent costs and, by incorporating a water treatment circuit, permitting the re-use of caustic and limiting water usage.

Recent Test Results and Advancement to Detailed Engineering for PSG Demonstration Plant

Renascor's adoption of caustic roast purification as the most commercially viable process for the BAM project follows the completion of a comprehensive program of laboratory test work, equipment trials, engineering and cost studies, customer qualification and large-scale testing.

Renascor's purification work programs were designed to optimise and advance the technological readiness level of the purification process by progressively increasing the scale of test programs, while simultaneously considering the efficiency and cost of the process. See Figure 2 (next page).

For personal use only

For personal use only

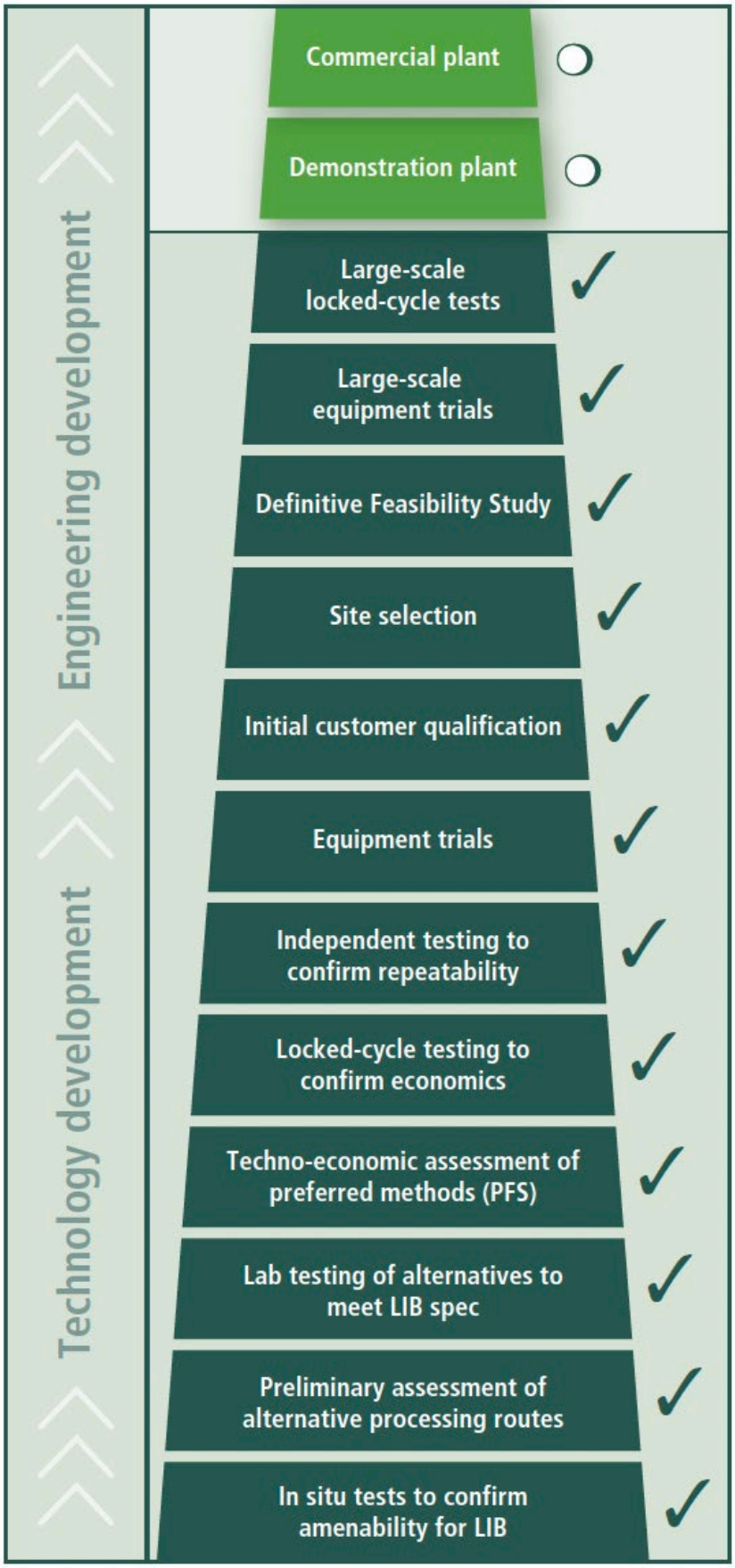

Figure 2. *Technological readiness level of Renascor's purification process*

For personal use only

The most recent tests follow large-scale locked-cycle trials using Renascor's caustic roast purification flowsheet that produced battery-grade, +99.99% Carbon graphite, with no impurities detected above acceptable anode customer specifications[8].

The water treatment tests were designed to confirm the effectiveness of integrating the water treatment circuit into the purification flowsheet. Assays from all liquors produced from the trials measured within the acceptable range to permit the water treatment circuit to effectively recycle reagents for re-use in the caustic roast circuit and to treat water from the leach circuits.

The results confirm the effective integration of the water treatment circuit with the purification flowsheet and support the technology readiness to advance to detailed engineering for the PSG demonstration facility.

As announced in July 2024, Renascor was awarded a $5 million grant under the Australian Government's International Partnerships in Critical Minerals Program to construct the PSG demonstration facility[9].

Next steps

Renascor has now awarded detailed design contracts for the purification and water treatment components of the PSG demonstration plant. Commissioning of the PSG demonstration facility is expected to commence in Q3 2025, commencing with the water treatment circuit. Pending timely receipt of equipment from overseas suppliers, full-scale demonstration plant commissioning is scheduled to commence in Q4 2025.

This ASX announcement has been approved by Renascor's Board of Directors and authorised for release by Renascor's Managing Director David Christensen.

For further information, please contact:

Company Contact
David Christensen
Managing Director
+61 8 8363 6989
info@renascor.com.au

Media Enquiries Contact
James Moses
Mandate Corporate
+61 (0) 420 991 574
james@mandatecorporate.com.au

Keep in the Loop:

Subscribe to our newsletter

For personal use only

Appendix 1

About Renascor

Renascor is developing a vertically integrated Battery Anode Material (**BAM**) in South Australia. The BAM project comprises:

- **the Siviour Graphite Deposit** - the world's second largest Proven Reserve of Graphite and the largest Graphite Reserve outside of Africa[10];
- **the Graphite Mine and Processing Operation** - a conventional open-pit mine and crush, grind, float processing circuit delivering world-class operating costs in large part due to the favourable geology and geometry of Renascor's Siviour Graphite Deposit; and
- **a Battery Anode Material Production Facility** – where graphite will be converted to Purified Spherical Graphite (**PSG**) using an eco-friendly processing method before being exported to lithium-ion battery anode manufacturers.

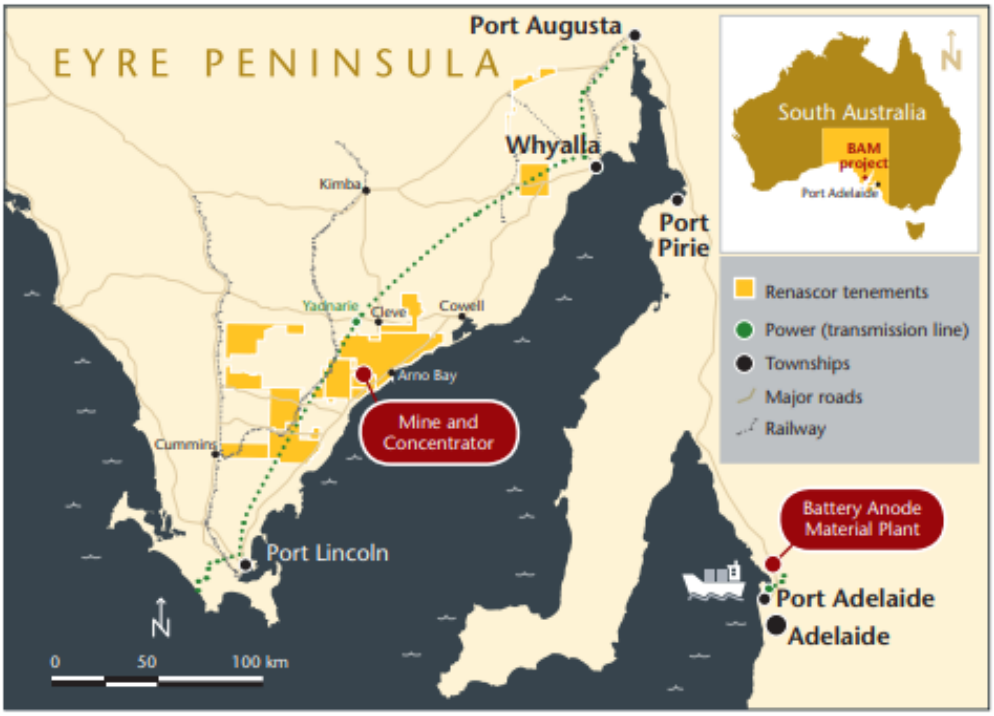

Figure 1. Renascor's Battery Anode Material Project location

HF-free

The 100% Renascor-owned Siviour Graphite deposit is unique in both its near-surface, flat-lying orientation and its scale as one of the world's largest graphite Reserves. The favourable geology and size of the deposit will allow Renascor to produce graphite at a low-cost over a 40-year mine life.

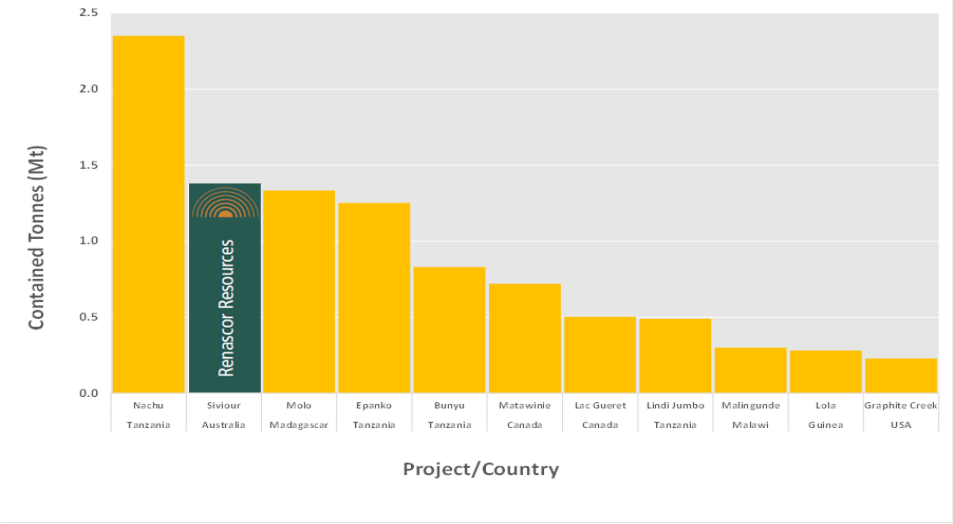

Figure 2. Globally Reported Proven Ore Reserve estimates (September 2023)[11]

Renascor intends to leverage this inherent advantage and develop a vertically integrated operation to manufacture high value PSG from a low-cost graphite concentrate feedstock and provide a secure cost-competitive supply of battery anode raw material into the rapidly growing lithium-ion battery market.

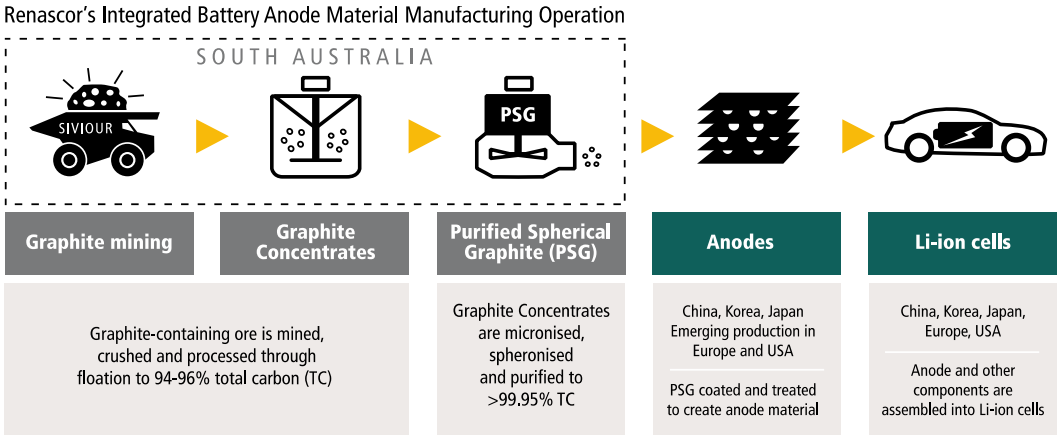

Figure 3. Renascor's vertically integrated Mine and Downstream PSG production facility within the Electric Vehicle supply chain.

For personal use only

For personal use only

Appendix 2

Peer Comparison Data

Company	Deposit	Country	Proven Reserve				Source	Date
			Total Tonnes (Mt)	Grade (%)	TGC (Mt)	Study Status*		
Volt Resources Ltd	Bunyu	Tanzania	19.3	4.3%	0.8	Pre-Feasibility Study	https://announcements.asx.com.au/asxpdf/20161215/pdf/43drlhpvdwbhxp.pdf	15 December 2016
Ecograf Ltd	Epanko	Tanzania	5.7	8.4%	0.5	Bankable Feasibility Study	https://announcements.asx.com.au/asxpdf/20240725/pdf/065xhvjr74hlh2.pdf	25 July 2024
Graphite One Inc	Graphite Creek	USA	3.8	6.0%	0.2	Pre-Feasibility Study	https://www.graphiteoneinc.com/wp-content/uploads/2022/10/JDS-Graphite-One-NI-43-101-PFS-20221013-compressed.pdf	14 October 2022
Nouveau Monde Graphite	Lac Guéret	Canada	2.0	25.1%	0.5	Technical Feasibility Study	https://masongraphite.com/wp-content/uploads/2021/06/a53b7c_22115be39ccf4d85b9579f359680997c.pdf	12 December 2018
Walkabout Resources Ltd	Lindi Jumbo	Tanzania	2.5	19.3%	0.5	Definitive Feasibility Study	https://announcements.asx.com.au/asxpdf/20190228/pdf/44321stl8dlk5f.pdf	28 February 2019
Falcon Energy Materials plc	Lola	Guinea	6.4	4.4%	0.3	Technical Feasibility Study	https://minedocs.com/25/SRG-Mining-Lola-Project-Update-FS-02272023.pdf	12 April 2023
NGX Ltd	Malingunde	Malawi	3.1	9.5%	0.3	Pre-Feasibility Study	https://announcements.asx.com.au/asxpdf/20230614/pdf/05qn89bfqrhwx8.pdf	14 June 2023
Nouveau Monde Graphite	Matawinie	Canada	17.3	4.2%	0.7	Technical Feasibility Study	https://nmg.com/wp-content/uploads/2022/08/Feasibility-Study-NMGs-Integrated-Phase-2-Projects.pdf	10 August 2022
NextSource Materials Inc	Molo	Madagascar	21.3	6.2%	1.3	Technical Feasibility Study	P9239 Molo Graphite Phase 2 NI43-101 Technical Report (nextsourcematerials.com)	12 December 2023
Magnis Energy Technologies Ltd	Nachu	Tanzania	50.5	4.6%	2.4	Bankable Feasibility Study	https://magnis.com.au/files/Nachu-BFS-Update.pdf	27 September 2022

* Denotes the name of the study at the time of the release. The Molo and Lindi Jumbo projects are now in the operations phase, with all other projects being in pre-production phase.

[1] See Renascor ASX announcement dated 8 August 2023.
[2] See Renascor ASX announcement 28 November 2022.
[3] See Renascor ASX announcements dated 24 June 2024, 30 October 2024 and 31 January 2025.
[4] See Renascor ASX announcements dated 29 February 2024 and 31 January 2025.
[5] Source: Benchmark Minerals Intelligence.
[6] Benchmark Mineral Intelligence projects Renascor's operating cost to be within the lowest quartile of projected operating costs of graphite developments forecast to be on-line in 2030. See Renascor ASX announcement dated 26 November 2024, page 16.
[7] Whilst purification using HF is the traditional approach in China, some new Chinese commercial operations have adopted alternative non-HF flowsheets that applying caustic roast with less corrosive leaching agents.
[8] Renascor previously completed locked-cycle tests in December 2021 on an alternative flow sheet, which commenced with a caustic bake before a multi-stage leach. See Renascor ASX announcement dated 21 December 2021. Subsequently, Renascor undertook optimisation tests and revised the flowsheet to commence with a primary leach followed by a caustic roast and a secondary leach. See Renascor ASX announcement dated 26 April 2023. Renascor completed further locked-cycle tests on the current purification flowsheet in 2023. See Renascor announcement dated 8 August 2023.
[9] See Renascor ASX announcement dated 11 July 2024.
[10] See Renascor ASX release dated 21 July 2020.
[11] Source: public company reports. Does not include graphite deposits that do not publicly report data on main stock exchanges in Australia, Canada, the United Kingdom and the United States. See Appendix 2 for further details on sourcing.