

Quarterly Report

31 December 2019

ASX Release

Quarterly report for the period ending 31 December 2019

Renascor Resources Ltd
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ASX CODE

RNU

Developing Australia's Largest Graphite Deposit



Significant Events

- The Definitive Feasibility Study (DFS) for Renascor's 100%-owned Siviour Graphite Project (**Siviour**) confirms Siviour as a low-cost, long-life graphite project that can achieve consistently attractive profit margins even in the current lower graphite price environment. The results include:
 - Post-tax NPV_{10%} of A\$388m or US\$271m;
 - Post-tax IRR of 33%;
 - Start-up capital requirement of A\$114m or US\$79m, plus a mining pre-strip of \$A4m or US\$3m;
 - Average EBITDA of A\$83m or US\$58m, EBITDA margin of 57%; and
 - Projected life of mine (**LOM**) operating cost of A\$508 or US\$355 per tonne (A\$471 or US\$330 per tonne over first ten years) – amongst the lowest projected operating costs globally.
- Purification tests on Siviour graphite concentrates using a potentially low-cost purification technique have produced battery-grade graphite, with purities of up to 99.98% total carbon, suggesting potential to achieve further cost-savings in Renascor's proposed downstream spherical graphite operation.
- Renascor entered into non-binding memorandum of understanding with Sicona Battery Technologies (**Sicona**) to jointly develop battery anode material.
- Cash position of approximately \$1.9m as of 31 December 2019, which does not include a further \$500,000 received in a Share Purchase Plan completed in January 2020 and an additional \$137,000 in placement proceeds subject to shareholder approval.



Figure 1. Siviour Graphite Project

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Siviour Graphite Project

Siviour Definitive Feasibility Study

During the recently completed quarter, Renascor completed the Siviour DFS.

A summary of the key results of the DFS is described below in Table 1. Additional information, including material assumptions, are included in Renascor's ASX announcement dated 11 November 2019.

Parameter	Stage-one		Stage-two	
	years 1 to 4		years 5 to 40	
	A\$	US\$	A\$	US\$
Annual production	80,000t		144,000t (years 5 to 10)	
	105,000t (LOM)			
Plant throughput run of mine (ROM) ore	825,000t		1,650,000t	
Average feed grade of ROM ore (TGC)	10.7%		9.1% (years 5 to 10)	
	7.4% (LOM)			
Cash cost per tonne	A\$494	US\$345	A\$464 (years 5 to 10)	US\$325 (years 5 to 10)
	A\$508 or US\$355 (LOM)			
Basket sales price	A\$1,149 or US\$804 (over first five years) A\$1,321 or US\$925 (LOM)			
Life of mine	40 years			
Capital expenditure	A\$114m	US\$79m	A\$77m	US\$54m
Mining Pre-Strip	A\$4m	US\$3m	N/A	N/A
Sustaining capital	A\$8m	US\$5m	A\$22m	US\$15m
	A\$116m or US\$81m (LOM)			
Payback period	3.7 years ¹		Not applicable	
NPV ₁₀ (after tax)	A\$388m or US\$271m			
IRR (after tax)	33%			
EBITDA	A\$49m	US\$34m	A\$87m	US\$61m
	A\$83m or US\$58m (LOM)			
Project cashflow	A\$2.1b or US\$1.5b (LOM)			

Table 1. Summary of key results of the Siviour DFS

¹ Reflects period of time to payback development capital for stage-one as calculated from first production, assuming cashflow from stage-one is not used to pay stage-two development capital.

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The DFS confirms Siviour's potential as a low-cost, long-life graphite project that can achieve consistently attractive profit margins even in the current lower graphite price environment.

Key highlights of the Siviour DFS include:

- *World-class, low-OPEX project.* The DFS results confirm Siviour's world-class potential, with a projected life of mine operating cost of A\$508 or US\$355 per tonne (A\$471 or US\$330 per tonne over first ten years) – amongst the lowest projected operating costs globally (see Figure 12 page 20 of Renascor ASX announcement of 11 November 2019).
- *Staged development to reduce up-front capital cost.* The DFS is based on a staged development, with average production of 80ktpa during first stage (years one to four), before expansion in year five to be funded through expected project cashflows. Average projected production in years five to ten is 144ktpa.
- *Revised, current pricing.* The DFS has been adjusted for current graphite market conditions with pricing from Benchmark Minerals Intelligence, resulting in a decrease from previous basket price through 2025 of 22% to A\$1,149 or US\$804².
- *Robust economics.* The results confirm compelling project economics, including:
 - Post-tax NPV_{10%} of A\$388m or US\$271m;
 - Post-tax IRR of 33%;
 - Start-up capital requirement of A\$114m or US\$79m plus a mining pre-strip of \$A4m or US\$3m; and
 - Average EBITDA of A\$83m or US\$58m, EBITDA margin of 57%.
- *Funding.* Up to 60% of the start-up capital requirement is expected to qualify for in-principle support from Atradius, the Dutch export credit agency (ECA), subject to finalising the procurement strategy in the front-end engineering design (FEED) phase.

Renascor's next immediate steps will include continuing to focus on offtake, permitting and financing, with work expected to include:

- *Offtake.* The results of the DFS support Renascor's marketing strategy to provide a market-leading product offering into the growing lithium-ion battery market by producing at a globally competitive low cost from the secure, low sovereign risk mining jurisdiction of South Australia. With the DFS complete, Renascor intends to advance discussions with potential purchasers and strategic partners, with a focus on the lithium-ion battery market. Work is also expected to include qualification of samples of Siviour graphite concentrates with established end-users.
- *Permitting.* In 2019, the South Australia Minister for Energy and Mining granted a

² In May 2019, Renascor announced the results of the Optimised Development Plan (ODP), a scoping study level assessment of the development plan adopted in the DFS. The ODP adopted a fixed annual pricing model for each product specification. See Renascor ASX announcement dated 3 May 2019, page 20. If the pricing model from the ODP had been adopted in the DFS (which applies variable pricing by year based on forecast data supplied by Benchmark Minerals Intelligence), the DFS basket price would have been A\$1,470 or US\$1,029.

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Mineral Lease for the Siviour Graphite Project. See Renascor ASX announcement dated 8 April 2019. The Mineral Lease details the conditions that must be addressed in a Program for Environment Protection and Rehabilitation (**PEPR**), which is the second step in the Government's two-stage assessment and approval process. Renascor is currently preparing the PEPR.

- **Financing.** In April 2019, following a preliminary assessment of Siviour, Atradius Dutch State Business (**Atradius**), the Government of the Netherlands official ECA, issued a Letter of Interest (**LOI**) confirming in-principle project finance support under the Dutch export credit guarantee scheme (**ECA Cover**). See Renascor ASX announcement dated 10 April 2019. Renascor has estimated that up to approximately 60% of stage-one capital expenditure is expected to qualify under the Atradius ECA Cover after finalising the ECA procurement strategy in the FEED phase. The LOI represented the first milestone in Renascor's engagement with Atradius. The next step in obtaining ECA Cover involves further due diligence by Atradius and, assuming a satisfactory outcome, a positive decision from the relevant committees of Atradius can be secured. It is common to work with one or more financial institutions in parallel with Atradius with the intention to fund the transaction supported by credit insurance cover from Atradius. With the DFS now complete, Renascor expects to commence financial due diligence with Atradius and other financial institutions.

Additional work programs are expected to include working to secure an EPC proposal and completing the FEED phase. Renascor also plans to collect a bulk sample for additional customer sampling and undertake confirmatory and optimisation metallurgical testing in connection with FEED.

Concurrently, following the successful completion of the Spherical Graphite Pre-Feasibility Study (**Spherical PFS**) in 2019 (see Renascor ASX announcement dated 21 February 2019), Renascor intends to advance its downstream graphite strategy. This includes preparing additional spherical graphite market samples and continuing optimisation advanced process design tests in preparation for advanced study work on the viability of a vertically integrated downstream operation to produce spherical graphite for direct sale to lithium-ion battery anode producers.

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Purification Tests on Spherical Graphite

During the recently completed quarter, Renascor announced the results of purification tests on Siviour graphite concentrates using a potentially low-cost purification technique have produced battery-grade graphite, with purities of up to 99.98% total carbon (TC).

Overview

The Spherical PFS confirmed the opportunity to unlock further value from Renascor's 100%-owned Siviour Graphite Project through Australia's first integrated graphite concentrate and spherical graphite operation, concluding that Siviour could produce purified spherical graphite at a projected gross cash operating cost of US\$1,962 per tonne.³ Currently, nearly all purified natural flake graphite is produced in China, with costs estimated at between US\$2,000 and US\$2,700 per tonne.

Spherical graphite market

Renascor considers the market for spherical graphite, which is used in lithium-ion battery anodes, to offer high potential for significant returns due to the projected growth of the lithium-ion battery market.

The projected increased demand in lithium-ion batteries has the potential to significantly increase the demand for spherical graphite, with projected compounded annual growth rates of up to 26% between 2015 and 2030. See Figure 2.

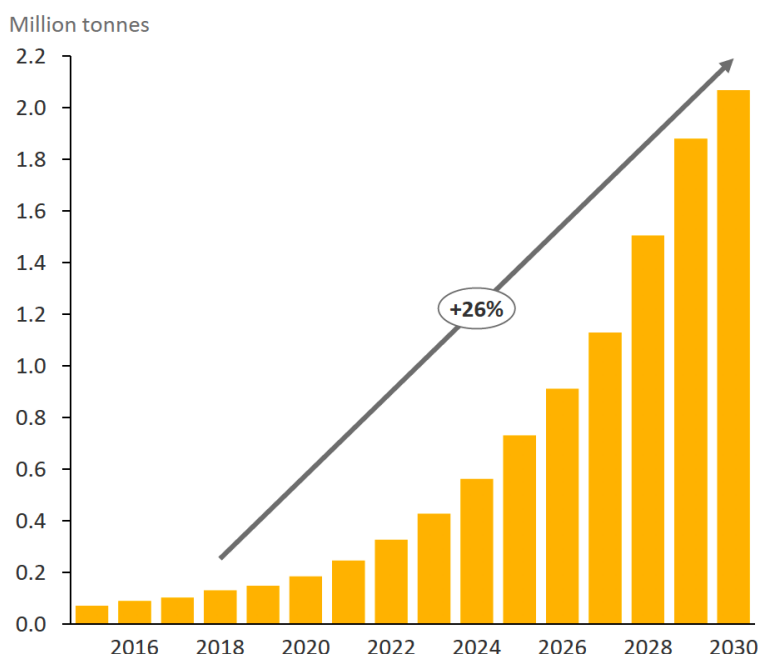


Figure 2. Uncoated spherical graphite demand forecast (2015 to 2030) (Source: Benchmark Mineral Intelligence)

³ See RNU ASX announcement dated 21 February 2019, pp 2-3 and 20. The Spherical PFS projected total gross operating costs of US\$1,962 per tonne, which could be reduced to a net cost of US\$1,412 per tonne through the sale of a recarburiser bi-product at a projected cost US\$550 per tonne.

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Description of Urbix test work

Urbix is a US-based graphite processing specialist active in the development of technologies to improve the graphite value chain.

Urbix has developed a proprietary purification process, which has not previously been commercially used in the graphite sector, that uses a low-temperature (80°C), non-oxidative purification technique to produce battery-grade graphite from graphite concentrates. The Urbix technique offers the potential for cost savings in purification by lowering reagent and energy costs in comparison to other graphite purification techniques.

To assess the suitability of the Urbix purification technique for Siviour, Renascor provided Urbix with Siviour graphite concentrates for testing at Urbix's laboratory in Mesa, Arizona (USA).

Testing was performed on sample PO976, a sample of Siviour graphite concentrate with a purity of approximately 96% TC. Utilising Urbix's proprietary purification technique, the sample was successfully purified to battery grade graphite, with Urbix concluding that: "All data indicates that Siviour graphite can be economically upgraded to graphite with 99.96% total graphitic carbon."

A summary of key results is provided below in table 2 below:

Sample	Trial	Sample status	%TC
PO976	Purified, trial 1, batch 1	Composite sample	99.97%
PO976	Purified, trial 1, batch 2	Composite sample	99.98%

Table 2. Summary results from Urbix tests

Significance

The results of the Urbix purification tests are significant for Renascor because they offer further support for the marketability of Siviour graphite concentrates into the growing lithium-ion battery market by demonstrating that Siviour ore is amenable to purification via multiple techniques to achieve battery-grade purity specifications of over 99.95% TC.

Renascor's previous spherical graphite purification testing included tests involving both caustic roasting, as well as hydrofluoric acid purification. In both cases, Renascor successfully produced over 99.95% TC, battery-grade anode material from Siviour graphite concentrates. See Renascor ASX announcement dated 21 February 2019, page 10 and Renascor ASX announcement dated 12 August 2019 pages 3 to 5.

The results from the Urbix test work now offer a further purification technique to meet battery-grade specifications.

The results also offer the potential to achieve further cost-savings in Renascor's proposed downstream spherical graphite operation through the adoption of Urbix's purification technique.

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Next steps

Renascor's next steps in the development of its spherical graphite operation are expected to include advanced discussions with potential offtake and strategic partners and qualification testing of Siviour spherical graphite.

Concurrently, Renascor is preparing for more advanced feasibility studies for the production of spherical graphite to build on the results of the Spherical PFS. As part of this preparation, Renascor will continue with optimisation process design test work programs, including additional purification tests, as well as milling and battery test programs.

MOU to Jointly Develop Battery Anode Material

During the recently completed quarter, Renascor entered into a non-binding memorandum of understanding (**MOU**) to jointly develop battery anode material with Sicona, a battery anode company that is seeking to commercialise next-generation battery anodes that combine silicon with graphite to significantly improve anode capacity and cell energy density over current graphite-only battery anodes.

Under the terms of the MOU, Renascor and Sicona will collaborate in the development of the next-generation anode material by combining Renascor's expertise in the production of purified spherical graphite and Sicona's expertise in the development of silicon-based anodes.

In the first phase of the MOU with Sicona, Renascor will provide to Sicona samples of purified spherical graphite from Siviour, which Sicona will test in both high performance standard-energy graphite anodes, as well as next generation silicon-composite anode materials using Sicona's proprietary technologies. Testing will include a full suite of battery performance tests over 250 to 500 cycles, including specific capacity to measure the charge stored in the battery and coulombic efficiency to test the charge efficiency over which electrons are transferred.

Additional activities contemplated under the MOU include pilot-scale production trials and, pending favourable results, production of commercial quantities of next-generation battery anode materials.

Bulk Sample

During the recently completed quarter, Renascor advanced its plans to extract a 60 tonne bulk sample, announcing the approval from the South Australia Department for Energy and Mining.

Ore extracted from the bulk sample will be used in a pilot plant production trial in China and will provide large-scale marketing samples to permit potential end-users and strategic partners to conduct advanced testing and qualification.

Renascor previously conducted pilot testing on 18 tonnes of sample of Siviour ore. See Renascor ASX Announcement dated 31 October 2018. The previous program was conducted primarily to confirm grade, recovery and other flowsheet parameters adopted in the Siviour Definitive Feasibility Study (see Renascor ASX Announcement dated 11 November 2019), with graphite concentrates produced from the trial used for initial customer testing, as well as downstream spherical graphite testing.

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The graphite concentrates to be produced from this bulk sample and processing program will permit the production of large-scale marketing samples that will supplement the previously provided smaller-scale marketing samples. This will permit potential end-users to undertake more advanced testing and qualification of Siviour graphite.

Bulk sample drilling is expected to commence this quarter, to be followed by pilot plant production in China.

Marketing and Finance

Additional work programs undertaken during the quarter included meetings with potential purchasers of Siviour graphite concentrates and Spherical Graphite. These meetings followed positive feedback from parties who are seeking a secure, long-term supply of graphite to cover projected shortages in graphite supply as lithium-ion battery anode demand for graphite continues to grow.

The next significant steps in advancing these discussions are expected to include the provision of additional marketing samples and further discussions regarding the development of Stage One of the Siviour Project.

Other Projects

Additional work undertaken during the recently completed quarter included the planning for reconnaissance exploration programs at Renascor's 100%-owned Ungarra kaolin prospect and Tumby Bay rare earths prospects, both of which are located in South Australia's Eyre Peninsula, to southwest of the Siviour Project. See Figure 3.

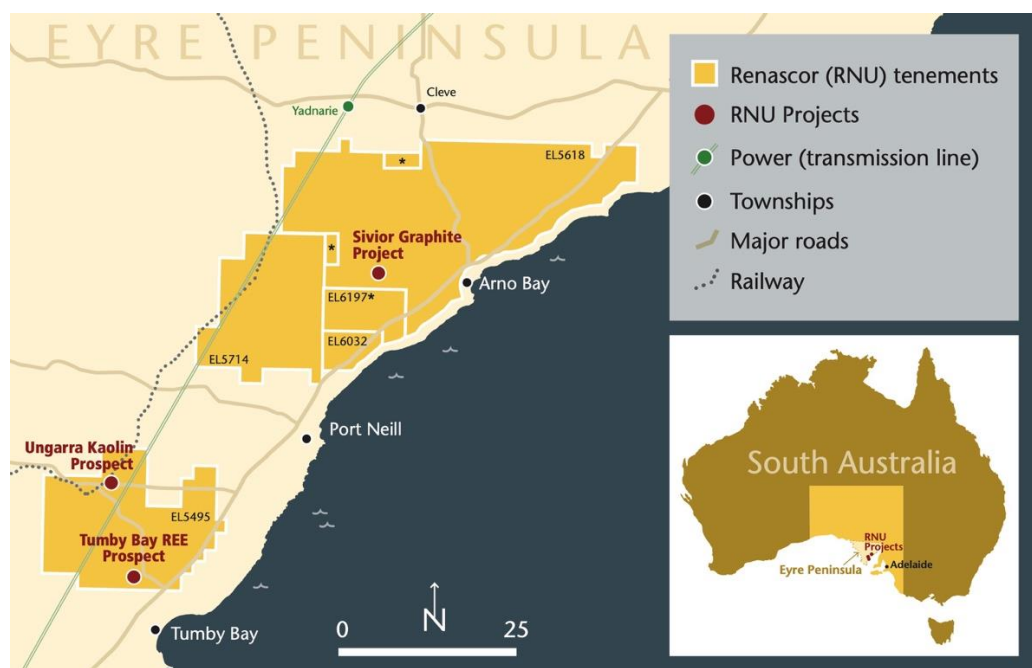


Figure 3. Location of Renascor's Ungarra kaolin and Tumby Bay rare earth prospects in relation to the Siviour Project

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Corporate Events

Capital Raising

On 5 December 2019, Renascor announced a capital raising to raise approximately \$1.9m (before expenses). The capital raising consisted of a placement of \$1.4m (**Placement**) and a share purchase plan (**SPP**) to raise up to \$0.5m. Shares issued under both the Placement and the SPP consisted of fully paid ordinary shares at a price of 1.1 cents per share.

Under the Placement, Renascor received firm commitments from professional and sophisticated investors for the issue of 125,727,273 shares to raise \$1.4m (before expenses). On 12 December 2019, Renascor issued 110,454,528 shares, and on 19 December 2019, Renascor issued an additional 2,818,200 shares. The remaining 12,454,545 shares are to be issued to Directors of Renascor subject to shareholder approval.

Pursuant to the SPP, Renascor received valid applications for the issue of 45,454,552 shares, the maximum amount permitted under the SPP, to raise \$0.5m (before expenses). On 13 January 2020, Renascor issued the SPP shares.

Funds raised in the capital raising are intended to support upcoming activities to advance the Siviour Graphite Project, including:

- Bulk sampling, product qualification and marketing;
- Front End Engineering and Design (**FEED**);
- Engagement with potential debt financiers;
- Securing binding offtake agreements; and
- Advancing Renascor's spherical graphite production strategy.

Other Corporate Events

- On 20 November 2019, Renascor convened its Annual General Meeting, approving all resolutions under consideration. See Renascor ASX announcement dated 20 November 2019.
- As of 31 December 2019, Renascor had approximately \$1.9m cash on hand, which does not include a further \$500,000 received in the SPP and an additional \$137,000 in placement proceeds subject to shareholder approval.

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Competent Person's Statement – Exploration Results

The results reported herein, insofar as they relate to exploration activities and exploration results, are based on information provided to and reviewed by Mr G.W. McConachy (Fellow of the Australasian Institute of Mining and Metallurgy) who is a director of the Company. Mr McConachy has sufficient experience relevant to the style of mineralisation and type of deposits being considered 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). Mr McConachy consents to the inclusion in the report of the matters based on the reviewed information in the form and context in which it appears.

This report may contain forward-looking statements. Any forward-looking statements reflect management's current beliefs based on information currently available to management and are based on what management believes to be reasonable assumptions. A number of factors could cause actual results, or expectations to differ materially from the results expressed or implied in the forward-looking statements.

For further information, please contact:

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This announcement was authorised for release to the ASX by Pierre van der Merwe, Company Secretary and David Christensen, Managing Director

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Appendix 1

Summary of tenements for quarter ended 31 December 2019

(ASX Listing Rule 5.3.3)

Project Name	Tenement	Area km ²	Registered holder/Applicant	District	Company Interest
Willouran	EL6170	349	Renascor Resources Limited (Renascor)	South Australia	100%
Callanna	EL5586	372	Renascor	South Australia	100%
Witchelina	EL 6403	316	Renascor	South Australia	100%
Iron Baron	EL5822	253	Renascor	South Australia	100%
Old Wartaka	EL6191	14	Renascor	South Australia	100%
Carnding	EL5856	92	Renascor	South Australia	100%
Outalpa	EL6450	160	Astra Resources Pty Ltd (Astra)*	South Australia	100%*
Cutana	EL6451	157	Astra*	South Australia	100%*
Malbrom	EL6197	81	Ausmin Development Pty Ltd (Ausmin)*	South Australia	100%*
Lipson Cove	EL6423	329	Ausmin*	South Australia	100%*
Verran	EL5618	690	Ausmin*	South Australia	100%*
Malbrom West	EL5714	270	Ausmin*	South Australia	100%*
Dutton Bay	EL6032	31	Ausmin*	South Australia	100%*
Siviour	ML6495	16	Ausmin*	South Australia	100%*

* Astra and Ausmin are 100%-owned subsidiaries of Renascor.