

Ardea dreaming big at Goongarrie nickel play

DEVELOPMENT of Ardea Resources' world-scale Kalgoorlie nickel laterite project is still some years off even in the most optimistic forecasts, but the company is reporting increasing interest from potential development, funding and offtake partners.



Ardea's Darren Howe and Andrew Penkethman

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With an updated prefeasibility study due early in 2023, managing director Andrew Penkethman told *MNN* on a recent site visit that the phone was ringing hot.

Comments

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"We've gone from about 2-3 interested parties in 2021 to that many in just the past few weeks."

Haydn Black

Reporter

The KNP is not a small project, nor one for the faint of heart given its size, and the chequered history of Australian laterite projects.

The project has a resource of 830 million tonnes grading 0.7% nickel and 0.05% cobalt for 5.9Mt contained nickel and 380,000t cobalt metal, which could support decades of production.

Penkethman said getting the right partner on board was as critical as getting the metallurgy right.



The ideal situation is to bring in a strategic partner to advance the definitive feasibility study, so Ardea can tailor the outcomes to what potential offtake partners want.

"The PFS will demonstrate the scale of the project and allow partners to do due diligence," he said.

"We're looking at producing a mixed hydroxide precipitate, but if the partner wants, we're open to precursor cathode-active material, or mixed sulphide precipitate.

"We need to be patient and get it right, because we can only do this once."



Potential partners have run the gamut from battery makers, electric vehicle manufactures, large miners, and commodities traders, with the last group increasingly getting squeezed out of supply chains as battery firms go upstream to secure supply.



Penkethman expects the funding and offtake will be inextricably linked.

That's one reason the company has resisted signing any offtake agreement so far, because moving too early could sell the farm too cheaply.

Ardea may also advance the DFS on its own for the same reason, he said.

Away from the corporate front, leading the metallurgical work, is general manager technical services Mike Miller, who Penkethman said has "probably produced more MHP than anyone in the world".

Miller has worked on many the laterite developments in Australia, including the most recent development, Ravensthorpe, now owned by First Quantum Minerals.

"HPAL (high-pressure acid leaching) has had a lot of bad press, but it was misplaced, and we have improved the flow sheet since," Miller said.



Darren Howe



Unlike earlier projects such as Cawse, Bulong or Ravensthorpe, there's no need for beneficiation at Ardea's Goongarrie hub deposits, which the company has long championed as having the best laterite ore in Australia.

A quirk of geology means there has been preferential weathering creating goethite that has "unheard of" nickel-cobalt grades and thicknesses at Goongarrie.

Geology superintendent Darren Howe said the free-dig ore was also a uniform colour, so it could be easily identified and mined, unlike the clay-dominated material being mined by Glencore at Murrin Murrin.

Goongarrie also comes with magnesium at the base of the laterite, which helpfully is an ideal neutraliser, which should cut costs as the company plans to build both HPAL and atmospheric leach circuits.

While the focus is on recovering the nickel and cobalt, the system contains other minerals, such as scandium and rare earths, which might be recoverable, but at this stage they aren't in the frame.

"We can't keep chasing additions," Miller said.

"Well focus on the nickel-cobalt and look at the options for the other minerals from the tailings in the future."

Much of Miller's recent work has been refining the enhanced flow sheet, which has helped Ardea size the project at 3.5Mtpa, with two 1.5Mtpa HPAL autoclaves and the 500,000t AL circuit, compared to a single 2.24Mtpa autoclave that was the base case in 2018.

The initial focus will be on the goethite at the Patricia Anne and Pamela Jean areas to deliver an early project payback before any ore that needs beneficiation is needed.

The project also benefits from being just outside Kalgoorlie, and critical gas and transport infrastructure.

Ardea shares have traded at A45c and \$2.05 over the past year and were last traded at 85c, valuing it at \$144 million.





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