

# Ardea on the rise



Much to the chagrin of many mining executives, the release of a feasibility study often triggers a muted or negative response from the market, no matter how robust the economics are.

Ardea Resources Ltd would appear to be an outlier in that regard. Following the unveiling of the PFS for its longstanding Kalgoorlie Nickel Project (KNP) in early July, the company's share price surged almost 165% having fallen to a three-year low in the days before its release.

As well as a boost to Ardea shareholders, the response was perhaps the strongest indication yet the Australian market might be changing its attitude towards development of large nickel laterite projects such as the KNP.

Ardea's PFS announcement was accompanied by confirmation the company had entered into a non-binding MOU with a Japanese consortium comprised of Sumitomo Metal Mining Co Ltd, Mitsubishi Corp and Mitsui & Co Ltd to define a scope of work for the DFS and ultimately push the KNP towards development and long-awaited production.

From managing director Andrew Penkethman's perspective, Ardea could not have landed three better development partners following a lengthy strategic process which previously attracted some criticism.

"Sumitomo Metal Mining, in my opinion, are the most successful nickel laterite project developer in the world," Penkethman told **Paydirt**.

"Add to that two industry giants in the largest and second largest commodities trading houses in Japan, in Mitsubishi and Mitsui, on board as well is a tremendous outcome for Ardea.

"We did receive some criticism about the strategic partner process and we arguably could have done two deals last year, but you only get to do the deal once and it lasts forever. We took the view that it's got to be the right deal, we're not going to do a deal for the sake of getting it done or a short-term share price spike. We want long-term value uplift and we feel we're well on our way to achieving that."

Focused on the untapped nickel-cobalt reserves at the Goongarrie Hub, about 70km north-west of Kalgoorlie, the PFS revealed a \$3.12 billion price tag for a conventional open-pit mining operation underpinned by a proven high-pressure acid leach (HPAL) and atmospheric leach (AL) flowsheet.

The project is forecast to generate a post-tax NPV of \$4.98 billion, IRR of 23%, average annual EBITDA of \$800 million and achieve payback within 3.1 years of first production.

Mining optimisation studies project production of 30,000 tpa nickel and 2,000 tpa cobalt for more than 40 years. Direct cash costs after cobalt by-product credits are estimated at \$US3,763/t nickel in MHP during the first five years of operation and \$US5,763/t nickel in MHP over the life-of mine.

Penkethman said the company had received "overwhelming, incredibly positive feedback" on the PFS.

"I've worked with a good friend, resource analyst Simon Tonkin, and we looked at some peer companies' share price performance upon completing and announcing a PFS or DFS, and in the majority of cases there had been a share price decline," he said.

### The proposed site for Ardea's 3.5 mtpa KNP nickel-cobalt processing facility

"Very fortunately, we saw a very meaningful share price appreciation with the PFS announcement, which was timed to correspond with our Japanese consortium MOU announcements. It's been a tremendous outcome on all fronts and, most importantly, we delivered it when we said we would. I think the market quite clearly wants to see companies achieve their objectives."

The PFS builds on a previous feasibility study released by Ardea in 2018 prior to Penkethman joining the company the following year. Major changes include increasing the project scale from 2.75 mtpa to 3.5 mtpa, two autoclaves instead of one and the addition of a 500,000 tpa AL circuit.

Via the AL circuit, Ardea is set to generate all its power off-grid and be completely independent of fossil fuels.

Penkethman believes many of the assumptions used in the PFS are still "overly conservative".

"To give you an example of that, with our autoclave resonance time, it was set at 70 minutes but we've got test work data that supports it could potentially be as low as 40 minutes," he said.

"We feel 60 minutes is incredibly defensible, it may even be lower than that. So, as part of the DFS, we'll be moving forward with a 60-minute autoclave resonance time. What that will result in is a 16% increase in throughput and a corresponding increase in nickel and cobalt production. It's a big enhancement for us to carry straight into the DFS."

Ardea took advantage of its recent share price surge by raising \$16 million from a

# NICKEL CONFERENCE PREVIEW

Ardea managing director Andrew Penkethman



The Goongarrie Hub hosts reserves of 194.1mt @ 0.7% nickel and 0.05% cobalt containing 1.36mt nickel and 99,000t cobalt

placement to professional and sophisticated investor clients of Petra Capital Pty Ltd for preliminary DFS works. Cornerstone investor Golden Energy and Resources was a major participant and now holds a 9.4% stake in the company.

While the scope of the DFS is still to be negotiated as part of the MOU, the Japanese consortium is expected to fully fund the undertaking, with Ardea likely to manage the various workstreams.

Penkethman said while his company first started engaging with Sumitomo more than 18 months ago, it wasn't until the group completed its own independent metallurgical test work that negotiations started ramping up.

Sumitomo's involvement in the KNP is seen as a major breakthrough for Australia's largest undeveloped nickel laterite project. It currently operates two nickel laterite mines in the Philippines, both of which use HPAL technology which has a somewhat chequered history in Australia.

"We see no reason why we can't replicate that success, particularly given our location just north of Kalgoorlie," Penkethman said.

"We're not going to be a classic stick-build in a remote area. We'll be able to do a lot of modular build and construction, whether it be in the City of Kalgoorlie-Boulder or elsewhere, and then truck those modules to site. That's going to help us to constrain the capital and expedite the actual project development.

"We're incredibly excited by the future ahead. Nickel laterites simply have to be part of the future production mix or there is no EV revolution or transition to a low carbon future."

Since his appointment as managing director of Ardea in 2019, Penkethman has crossed paths with his fair share of sceptics who have either written off the KNP or remain unaware HPAL is now a recognised and accepted form of processing for nickel laterite deposits.

Penkethman admits those conversations can be frustrating at times, but insists it only makes him more determined to realise the full potential of the KNP.

"I think there's been a gross generalisation of nickel laterites and HPAL being too hard, in Australia in particular, but that's so far removed from reality and it's been a challenge to overcome that incorrect perception," he said.

"We've got such a tremendous opportunity here and we're going in with our eyes wide open. We've got the advantage of over 25 years of project history and over 250,000m of drilling just at the Goongarrie Hub resources alone. Just think of the cost if you were to replace that now.

“It’s really only because of the GFC that the project hasn’t been developed. And the fact that it hasn’t been developed gives the company a tremendous opportunity and I couldn’t be more excited. But we’ll let our actions talk and let the future success of the project change people’s perceptions.”

Given the recent success of Indonesian nickel laterite projects producing MHP suitable for certain battery chemistries, Penkethman also believes it will only be a matter of time before global markets start turning to opportunities in Tier-1 jurisdictions such as Australia.

“All nickel resources need to be developed, whether they be laterite or sulphide, but very few sulphide projects have the meaningful scale to be able to plan strategically with decades of timeframe in mind and to be able to really consider going further downstream.”

“Our projects at the KNP clearly have that scale, but most peers just simply don’t. It just reiterates to me the importance of developing laterite projects and that supply chain diversity and security as an alternative to what’s happening in other nickel industry jurisdictions like Indonesia. It’s just simply never been a better time for the Australian nickel industry.”

– Michael Washbourne



Ardea chairman Mat Longworth

Duketon Mining Limited is an Australian mineral exploration company, focused on discovering nickel deposits within the Duketon greenstone belt north of the town of Laverton, Western Australia



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