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Ardea

Kalgoorlie Nickel Project

Sustainable and ethical
Battery and Critical Minerals

RIU Explorers Conference Presentation

15 February 2023

Australian Federal Government - Major Project Status

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This presentation contains general information only and is, or is based upon, information which has been released to ASX or is contained in the Ardea Resources Limited (Ardea or the Company) prospectus dated 9 November 2016 (including supplementary prospectuses dated 18 November 2016 and 6 January 2017), the Goongarrie Nickel Cobalt Project Pre-Feasibility Study (dated 28 March 2018) the Goongarrie Expansion Study (24 July 2018), Goongarrie Pilot Plant trial produces battery grade crystals (31 October 2018), GNCP High Grade Resource - 60 million tonnes at 1.0% nickel (15 February 2021), Quarterly Activities Report - March 2021 (21 April 2021), Basal contact nickel sulphide intersected at Ardea's Emu Lake (27 April 2021), Kalgoorlie Nickel Project – Feasibility Study Underway (31 May 2021), Semi-massive nickel sulphide intercept at Emu Lake (10 June 2021), Highway Nickel Deposit - Mineral Resource Estimate (16 June 2021), Nickel Sulphide Exploration Update – Emu Lake (13 July 2021), Goongarrie Hub Feasibility Study Update (15 November 2021), Emu Lake Discovery (3 December 2021, 14 January 2022, 7 February 2022), Goongarrie Hub Feasibility Study Update (25 January 2022), High-grade Nickel-Cobalt Confirmed at Kalpini with Scandium and Rare Earth Elements (14 March 2022), Kalgoorlie Nickel Project Recognition on All Tiers of Australian Government (21 March 2022), Quarterly Activities Report – March 2022 (28 April 2022), Confirmation of High-Grade Nickel-Cobalt from Goongarrie South Metallurgical Drilling (16 May 2022), Kalgoorlie Nickel Project Feasibility Study Update (14 June 2022) Quarterly Activities Report – June 2022 (19 July 2022), Kalgoorlie Nickel Project Strategy Update (9 September 2022), Annual Report 2022 (24 September 2022), Emu Lake Nickel Sulphide Exploration Update (14 October 2022), Quarterly Activities Report - September 2022 (28 October 2022), Kalgoorlie Nickel Project: Metallurgical Update – Mineralised Neutraliser (16 November 2022), Eastern Goldfields Projects Exploration Update (22 November 2022), Ardea Completes KNP ESG Accreditation from Independent Leading Global Platform (24 November 2022), Kalgoorlie Nickel Project - Goongarrie West Drilling Ionic Clay Rare Earth Discovery (30 January 2023), Quarterly Activities Report – December 2022 (31 January 2023) and Ardea receives $1.8 million R&D Tax Incentive Rebate (6 February 2023).

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The Goongarrie Project has completed the Pre-Feasibility Study phase and has commenced programs that are part of the Definitive Feasibility Study. Though reasonable care has been taken to ensure that the facts are accurate and/or that the opinions expressed are fair and reasonable, no reliance can be placed for any purpose whatsoever on the information contained in this document or on its completeness. Actual results and developments of projects and the market development may differ materially from those expressed or implied by these forward looking statements depending on a variety of factors. A key conclusion of the Pre-Feasibility Study and Expansion Study, which is based on forward looking statements, is that the Goongarrie Project is considered to have positive economic potential.

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Lithium-ion battery sector leads nickel demand growth

Currently, China dominates the lithium-ion battery (**LIB**) supply chain through long term strategic planning, whilst the rest of the world is rapidly trying to catch up.

Billions of dollars are being invested in LIB gigafactories, but where will the battery mineral supply come from?

ESG policies continue to reaffirm governments, and companies' commitments to sustainable and ethical supply chains

The supply response must include all nickel resources and favour those:

…that can provide **sustainable and ethical supply** — **Australia**

…with **supportive Government and communities** — **Western Australia**

…which are large scale deposits that can guarantee long term supply — **Kalgoorlie Nickel Project**

US grants 'preferred status' for Australian mineral exports

John Thomson, 22 Aug 2022, www.miningmagazine.com.au

Under the US' recently passed *Inflation Reduction Act*, 40 per cent of critical minerals value must be sourced from countries with pre-existing free trade agreements with the US, increasing to 80 per cent by 2027.

Minerals Council for Australia Chief Executive Officer, Tania Constable, said the Act would underpin future demand for Australian Critical Minerals.

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Nickel Industry Risk by Country

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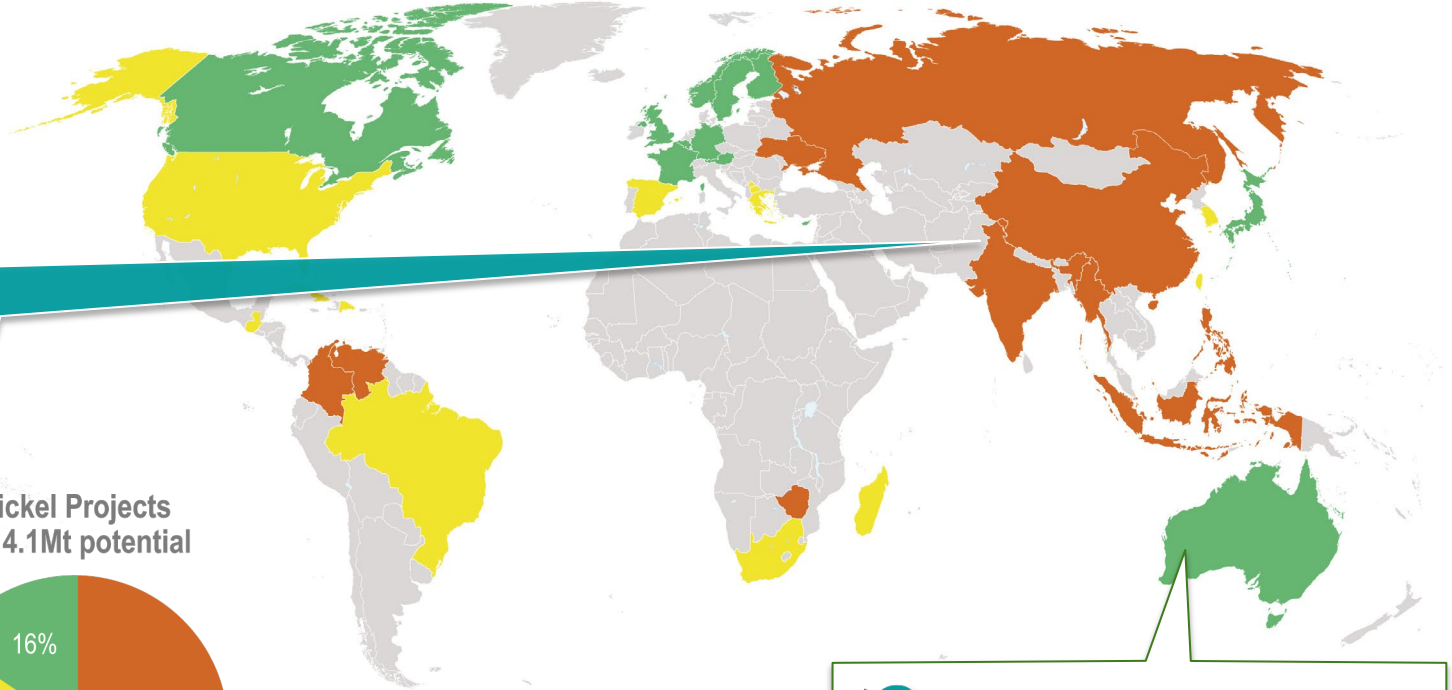
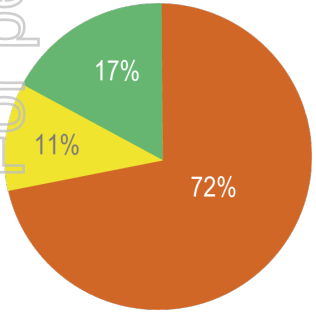
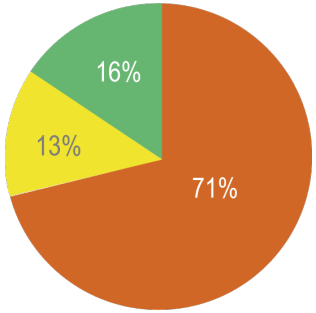
84% of nickel projects are in medium/high risk countries



2022 Refined Nickel Production 3.3Mt



Nickel Projects ca. 4.1Mt potential



Maplecroft risk score

Low risk	7.5-10.0
Medium risk	5.0-7.5
High risk	2.5-5.0
Extreme risk	0.0-2.5

After Source: Maplecroft; Wood Mackenzie

Kalgoorlie Nickel Project Low Risk

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Kalgoorlie Nickel Project (KNP) Highlights

World Class Nickel-Cobalt Mineral Resource

5.9Mt contained nickel, 384kt contained cobalt
plus Sc & other Critical Minerals*

Includes:

Goongarrie Hub High grade component: 784kt contained nickel, 54kt contained cobalt

* See Appendix for resource breakdown and ASX release 16 June 2021
^ ASX release 21 March 2022

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Premier location

For jurisdiction, infrastructure and technical expertise

WA is the premier global destination for the discovery and development of minerals operations

The infrastructure-rich Goldfields has over 125 years of mining with strong stake holder support and access to skilled professionals

The semi-arid Great Western Woodlands environment is favorable to KNP development and then rehabilitation

100% Ardea

High level of confidence and control behind resource

Robust and repeatable modelling from detailed geological logging of over 828km of drilling at KNP

All KNP Goongarrie Hub resources are on Granted Mining Leases with a Native Title Agreement in place

Ardea has full custody of all aspects of the KNP development **100% off-take still available** linked to project funding

Proven flowsheet

MHP production with industry leading low carbon emissions

Premium goethite ore is 'Best in Class' plant feed

In-demand MHP product or PCAM product to meet precise Strategic Partner requirements

Goethite-Magnesite saprock as Mineralised Neutraliser

Sustainable and ethical supply of nickel and Critical Minerals for a low carbon future

Economics

KNP gains national recognition to fast track permitting & funding

Awarded Major Project Status by Australian Federal Govt with streamlined support, approvals, and funding options

KNP is ranked #1 in the WA Geological Survey for Nickel^ (Feb22)

PFS work streams underway to deliver a world leading nickel-cobalt producer

Nickel sulphide, Sc, REE and other Critical Minerals to add potential value

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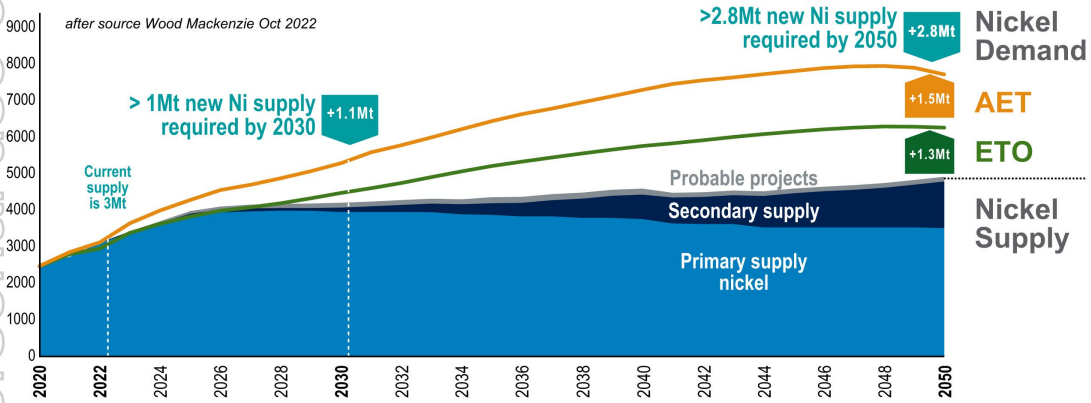
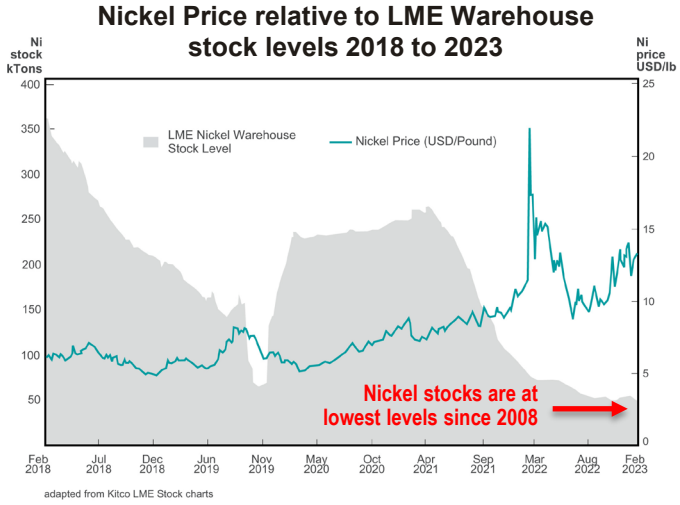
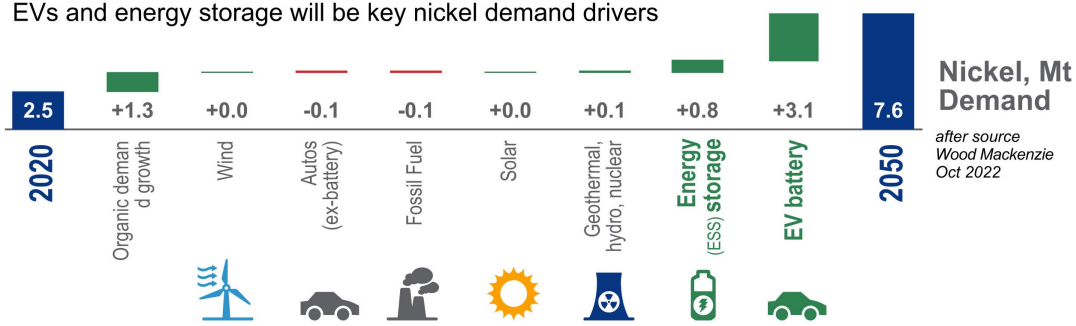
Future supplies of nickel will be needed

New supply of nickel from unidentified resources needed by 2050 is 1.3Mt under base case scenario (ETO) and > 2.8Mt under the accelerated energy transition (AET) scenario





EVs and energy storage will be key nickel demand drivers



EVs and energy storage will be key drivers of future nickel demand…

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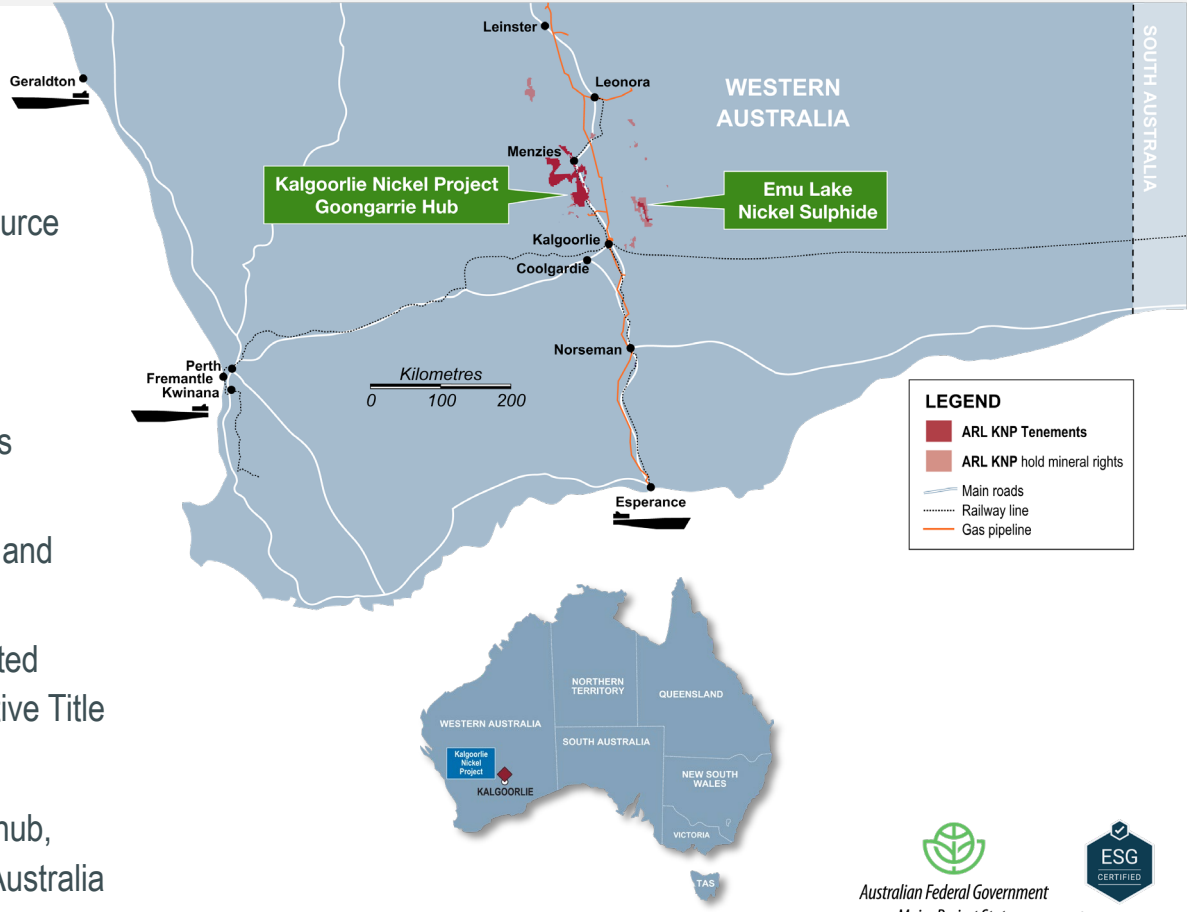
World's best operating jurisdiction

- All Ardea Projects located in Western Australia
- >4,000km^2 ground position in Eastern Goldfields
- City of Kalgoorlie-Boulder is the prime global resource development and operating destination
  - ✓ Very strong mining support from Local Government and Community
  - ✓ Multitude of world-class mining operations serviced from the City
  - ✓ Ardea maintains a local operations office and active stake holder engagement
  - ✓ Road and rail network pass through granted Goongarrie Hub mining leases with a Native Title Agreement in place
- Direct infrastructure links to key Kwinana battery hub, Southern Ports – Esperance, as well as Eastern Australia



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Optimum Location - sustainable and ethical mineral supply

Ardea's large contiguous KNP land holding allows unimpeded site planning to minimise ultimate site footprint in open Mediterranean woodlands highly amenable to low-impact development and rapid rehabilitation

- **Semi-arid environment, facilitates well managed tailings disposal**
  - ✓ Rehabilitation procedures well established in the Goldfields
  - ✓ No ocean submarine tailings
  - ✓ No valley-fill tailings dams
  - ✓ No active seismicity issues
  - ✓ No tropical high rainfall
- **Low carbon future**
  - ✓ **KNP HPAL plant steam, heating and power generated off grid** through using elemental sulphur
  - ✓ KNP HPAL neutraliser includes Ni-enriched Mg saprolite and magnesite
  - ✓ Waste landform regeneration facilitates significant agroforestry
- **No conflicting land use demands**
  - ✓ KNP purely a mining jurisdiction
  - ✓ Strong Community support
  - ✓ No competing land use, such as food production activity

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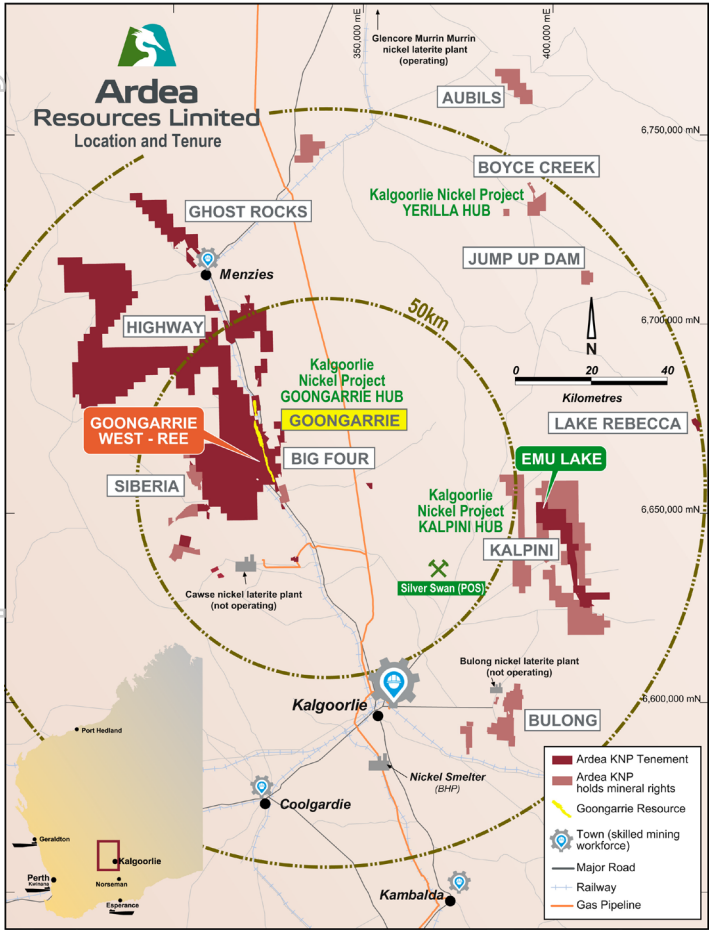
The **KNP** is a **Globally Significant Asset**….



and Australia's largest nickel-cobalt resource

Mineral Resource Estimate

5.9Mt contained nickel & 348kt contained cobalt*

Goongarrie Hub - High grade component:

78Mt at 1.0% Ni and 0.069% Co*

784kt contained **Nickel**, **54kt** contained **Cobalt**

Kalgoorlie Nickel Project **Goongarrie Hub** Prefeasibility Study (**PFS**) underway and includes the Goongarrie deposits and satellite deposits at Highway and Siberia North

* See Appendix for resource breakdown and ARL ASX release 16 June 2021

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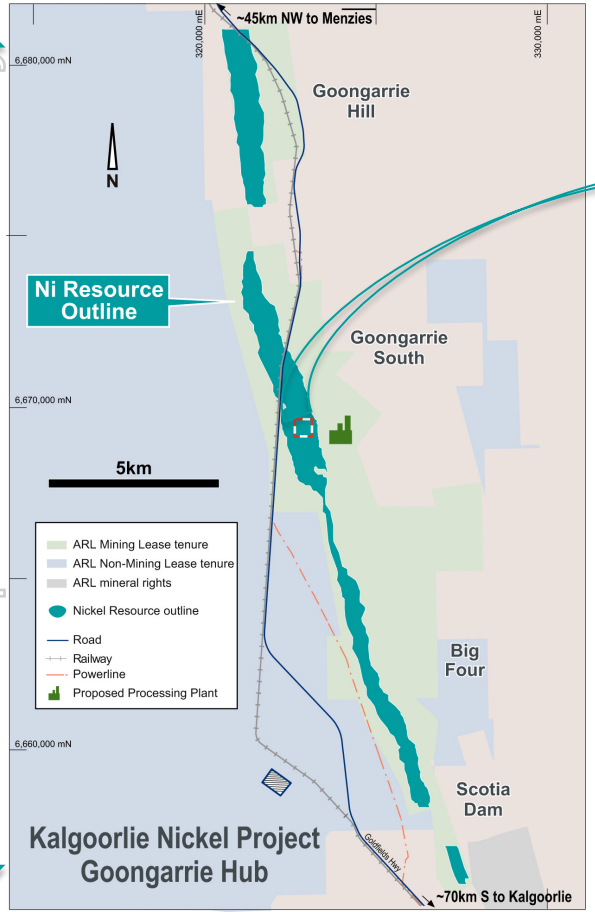
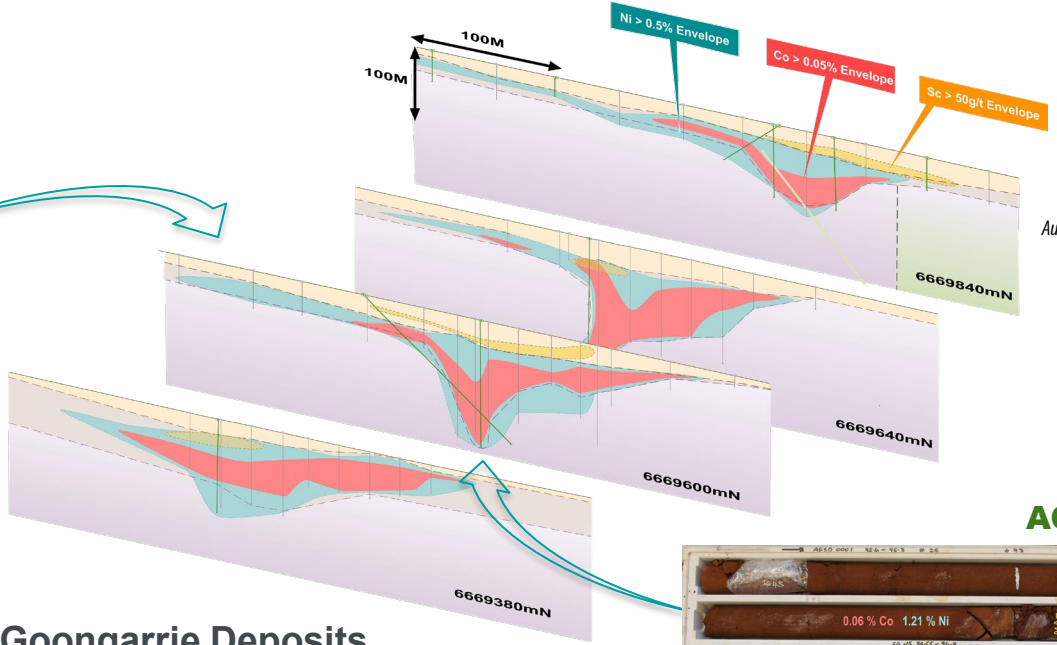
Simple Mining Characteristics





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Goongarrie Deposits

- 25km strike - Uniform Ni-Co laterite mineralisation dominated by **goethite**
- **Goethite** is 'Best in Class' plant feed
- Soft, mainly **free-digging** open-pit mining
- Low strip ratio expected with resource optimisation underway for updated PFS Ore Reserve

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Learning from other HPAL operations

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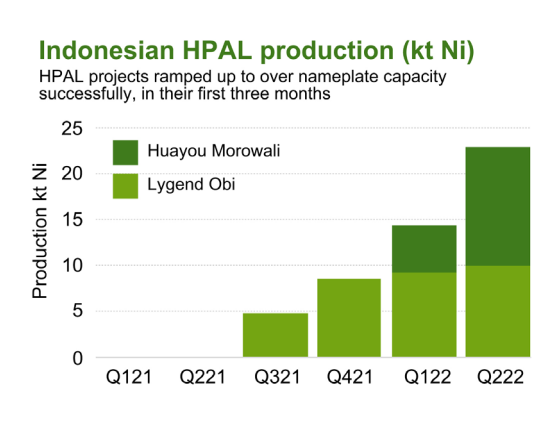
Ardea's KNP Goongarrie Hub development scale is 3.5Mtpa (2 x 1.5Mtpa HPAL + 0.5Mtpa AL circuit)

We have selected this combination by learning from other HPAL operations around the world, including the successful Coral Bay and Ravensthorpe operations and some Indonesian producers.

What recent Indonesian HPAL is doing well:

- Fast ramp up
- Reliable HPAL technology



Why **Kalgoorlie Nickel Project** is the optimum source of nickel-cobalt:

- Ardea flowsheet incorporates **best lessons** from operating and proven operations using HPAL and AL technologies, including **fast ramp up**
- The KNP is in Western Australia's Eastern Goldfields which is the premier location in the world for jurisdiction, infrastructure and skills **Guaranteeing ethical and sustainable production – a contrast to poor ESG credentials of most other jurisdictions.**
- The KNP flow sheet with the AL circuit will **reduce CO2 emissions** to 10-15kg/kg – **which is less than a quarter of the weighted average of Indonesian Matte producers**

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Enhanced flowsheet

- ✓ **Premium goethite ore is 'Best in Class' plant feed**
- ✓ **MHP sale product during ramp up, is the high demand new Class 1 nickel**
- ✓ **Evaluating PCAM production through FBICRC membership**
- ✓ **Additional Critical Mineral by-product studies**

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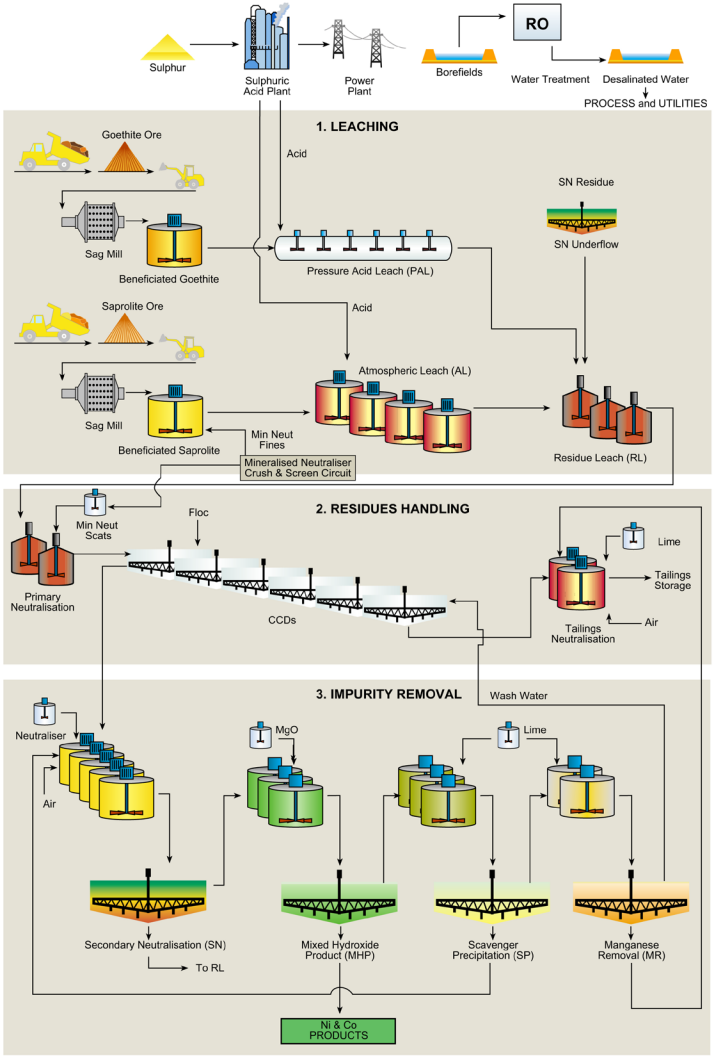
* See Appendix, KNP Superior HPAL Intensity slide, for data.

Proven Technology

- ✓ High ore grade + slurry density = Optimised Capex & Opex (best in Australia*)
- ✓ Proven HPAL Ni-Co Extraction = Efficient, low energy intensity, proven "off-the-shelf"
- ✓ Atmospheric Leach (AL) viable Ni extraction demonstrated in Vale Inco 2009 PFS
- ✓ AL = Stability for acid plant (energy generation), maximises resource utilisation
- ✓ In-pit high grade Goethite-Magnesite Saprock conducive to Mineralised Neutraliser feed
- ✓ Water Options = Using pit drainage + licensed borefields
- ✓ MHP = Known technology and chosen feedstock for lithium-ion batteries
- ✓ PCAM optionality for additional value add within Australia = Supply chain diversity
- ✓ Potential for significant by-product credits from Sc-REE, in addition to base case Ni-Co



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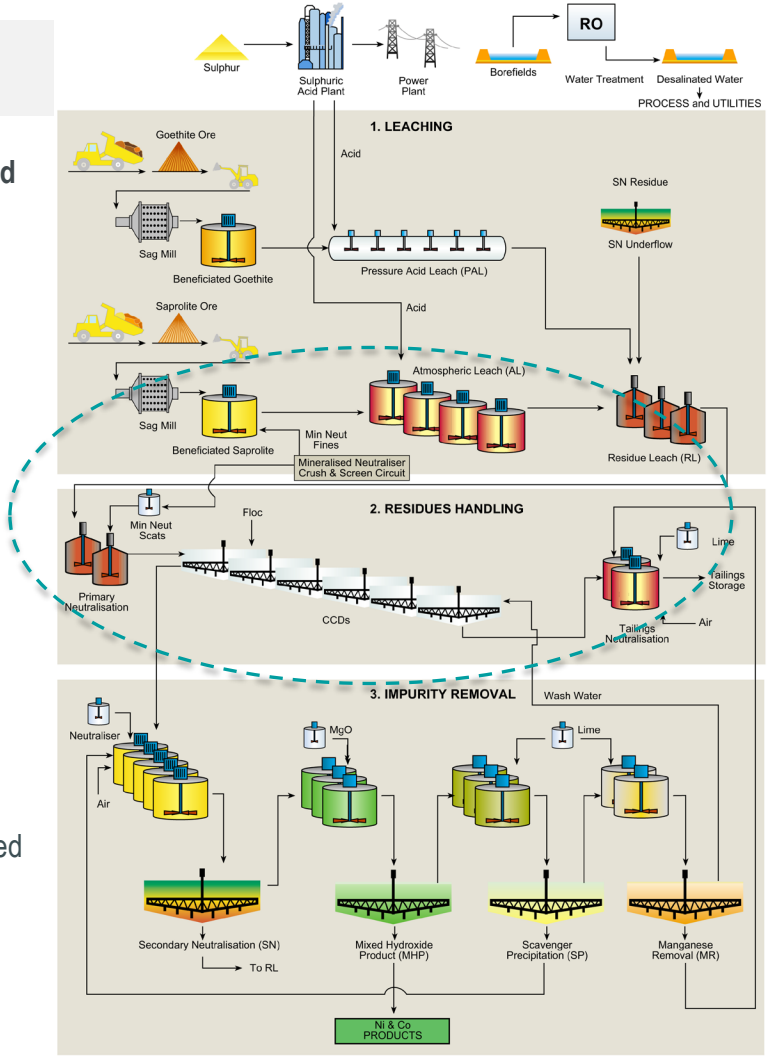

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Enhanced flowsheet – Mineralised Neutraliser circuit

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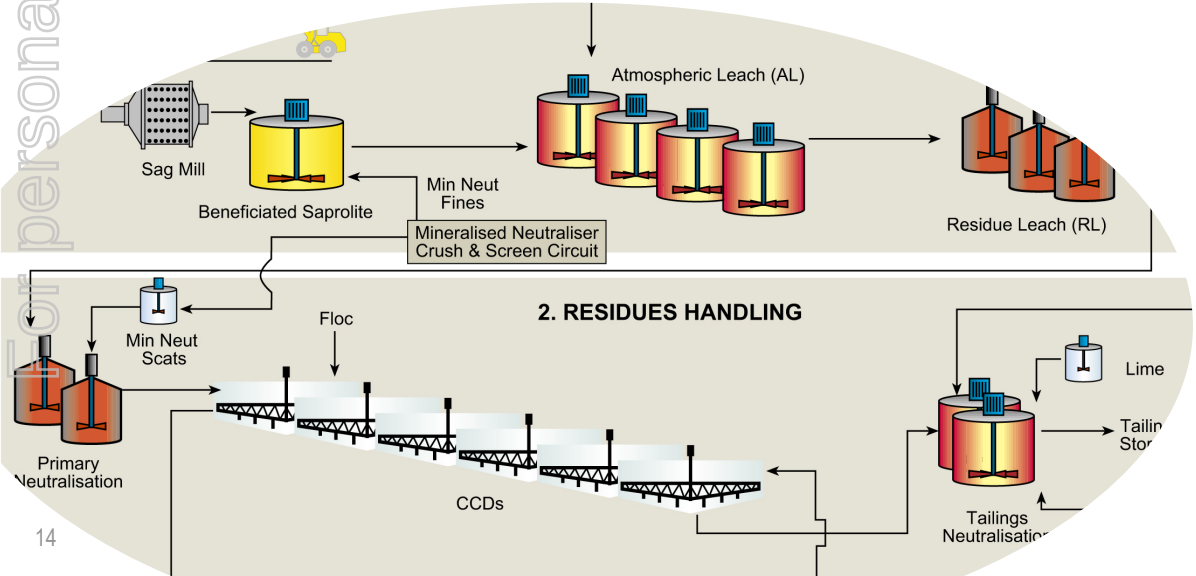
- KNP PFS has focused on the metallurgy of Material Types to evaluate and match specific mineralisation styles to the HPAL, AL and Mineralised Neutraliser circuits
- A game changer is the simple low-cost screening to separate the Serpentine-Goethite clay from the Magnesite Saprock Neutraliser
- Cost savings on purchasing and transporting limestone neutraliser to site
- Reduced carbon emissions by not having to transport as many consumables



Above – High Grade Goethite Magnesite Mineralised Neutraliser

Patent Application lodged with IP Australia November 2022

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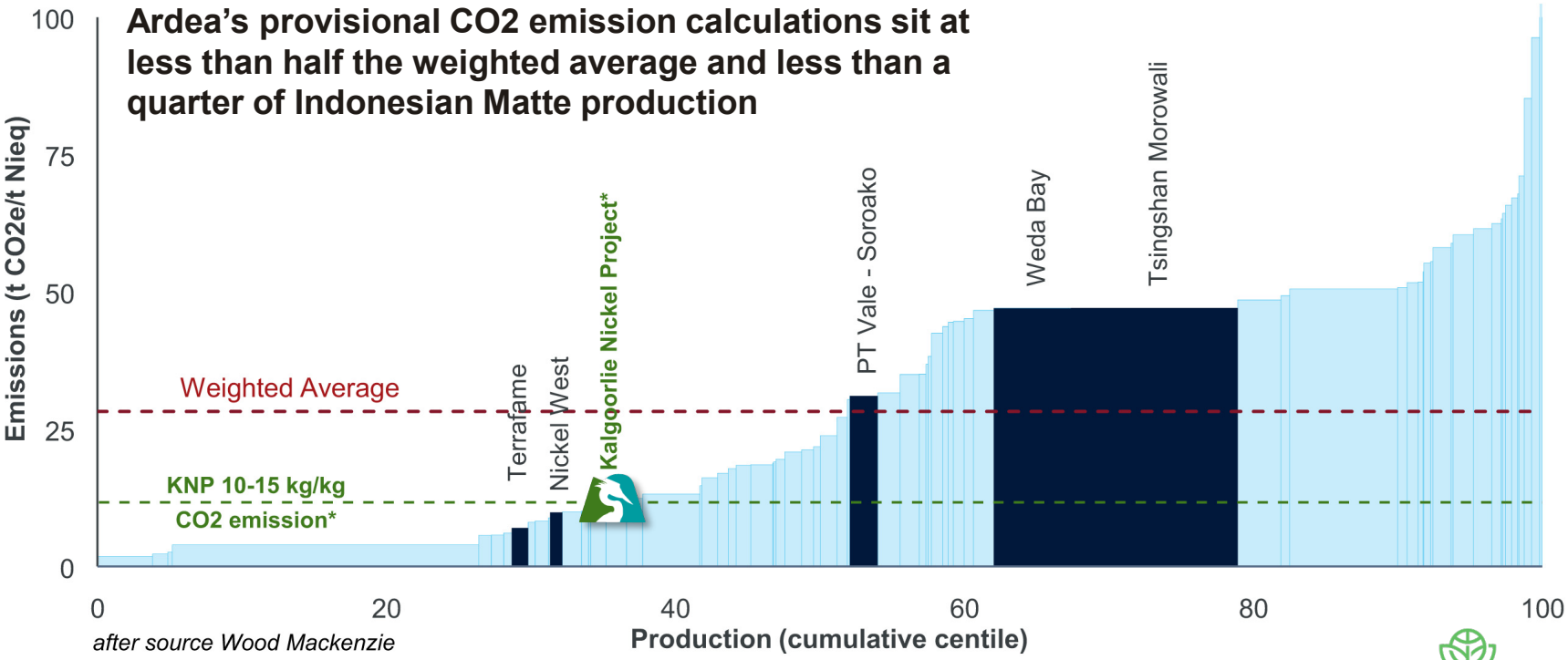
KNP sustainable and ethical production

Nickel industry CO2e curve (Scope 1 and 2 only) for 2021



after source Wood Mackenzie

- *These figures are provisional, based on the most recent mass balances but subject to changes in mine plan and other metrics for comparison*

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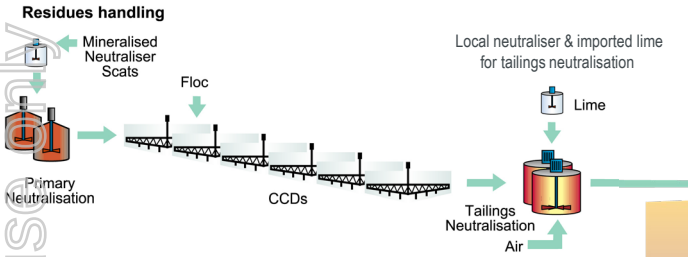
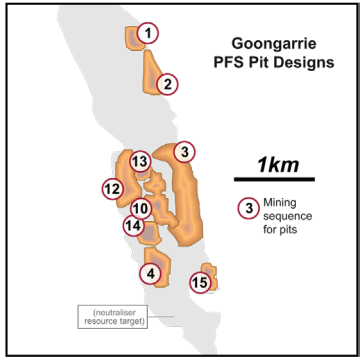
In pit tailings disposal and progressive rehabilitation





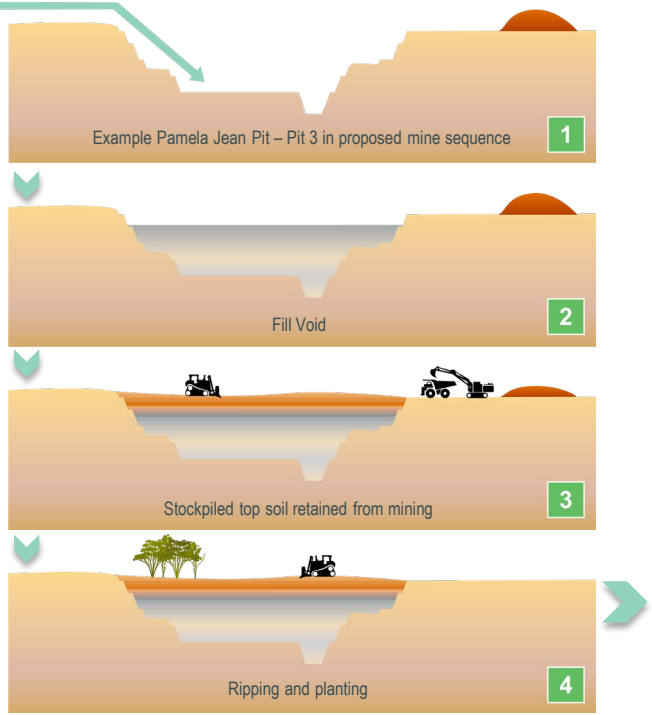
Multiple shallow pits mined in sequence, provide an ideal platform for sequential in pit tailings disposal.

This allows progressive rehabilitation to occur concurrent with sustainable nickel-cobalt production.

Goongarrie PFS pit designs sourced from the Ardea PFS ASX release 28 March 2018, page 9.

Neutralised tailings aggregate pumped into exhausted open pit void

Waste material from previous mining can be blended in



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KNP Development Plan

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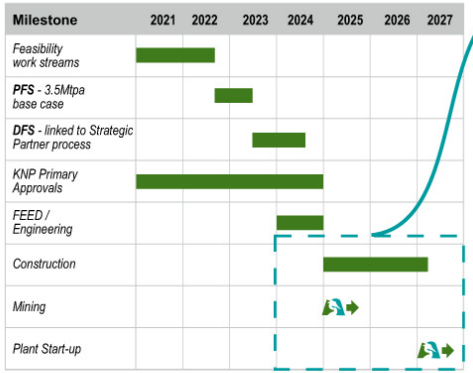
Proven team working with quality partners

- ✓ Team strengthened with the appointment of well-respected Project Director, Matthew Read. Starts 27 February 2023
- ✓ Industry leading HPAL practitioner, Mike Miller (previously technical mgt at the operating Ravensthorpe HPAL/AL operation), leading KNP PFS
- ✓ PFS on 3.5Mtpa base case producing MHP - Due June Quarter, 2023
- ✓ Feed grade 1% Ni and 0.07% Co, reflecting the 0.8% Ni cut-off resource*
- ✓ Industry leading consulting partners working with Ardea team on PFS include ALS, Orelogy, Rockwater and Wood
- ✓ Completion of DFS linked to Strategic Partner process, so that partner can have input into project scale and end-product specification
- ✓ Strong engagement with potential project development funders
- ✓ Continuing engagement with stake holders, such as the City of Kalgoorlie-Boulder, Shire of Menzies and Southern Ports Esperance

Kalgoorlie Nickel Project Goongarrie Hub

Development Plan and Projected Local Workforce



CONSTRUCTION
> 1500
estimated workforce

KNP IN PRODUCTION

Ardea Labour	
Production	350
Maintenance	100
Admin	100
Contractors	
Production	200
Maintenance	70
Total Projected Workforce	**820**

*The estimates presented on this table are based on past and current studies, and other industry examples. It is planned the KNP workforce will be **predominantly** residential in the Eastern Goldfields of WA, with FIFO option also offered to attract and retain the best team. The estimates do not include indirect employment from local industries (e.g. site services, equipment maintenance & logistics). Final numbers will be defined by in progress Prefeasibility Study. Timing of milestones linked to the Strategic Partner process.*

* See Appendix for resource breakdown and ASX release 16 June 2021

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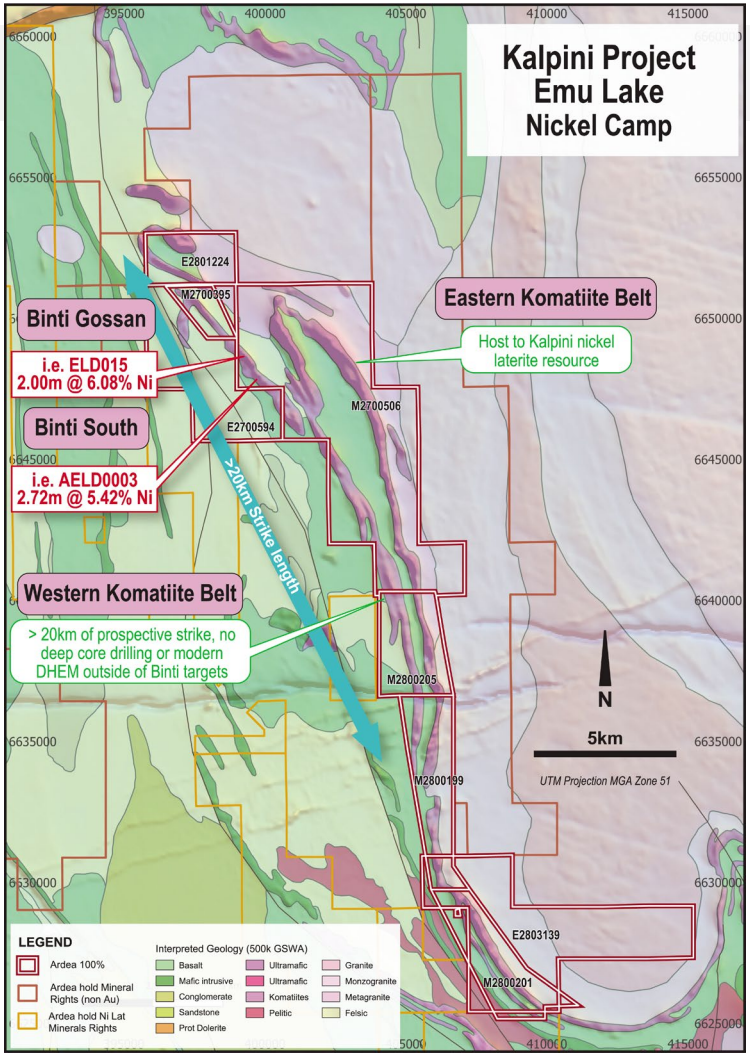
Nickel Sulphide **Upside**

Nickel Sulphide discovery at Emu Lake

- ✓ 70km north-east of Kalgoorlie within the KNP Kalpini Hub
- ✓ Exploration at **Binti South Prospect** confirms high-grade massive nickel-copper-PGE sulphide discovery on the Western Ultramafic (WU):
  - ✓ AELD0003: **2.72m at 5.42% Ni** and 0.85% Cu from 391.04m incl **1.23m at 8.22% Ni** and 0.56% Cu from 391.04m*.
  - ✓ AELD0002: 4.8m at 1.44% Ni and 0.16% Cu from 365.9m incl 1.10m at 4.78% Ni and 0.16% Cu from 366.9m.
- ✓ Historic exploration at the **Binti Gossan Prospect** located 1km northwest along strike from Binti South on an intact felsic footwall contact of the Central Ultramafic (CU):
  - ✓ ELD015: **2m at 6.08% Ni** and 1.82% Cu from 336.0m incl **0.6m at 18.82% Ni** and 5.57% Cu from 336.3m^

The discovery of massive nickel-copper-PGE sulphides in the highly underexplored Kurnalpi terrane at Kalpini Hub is very significant



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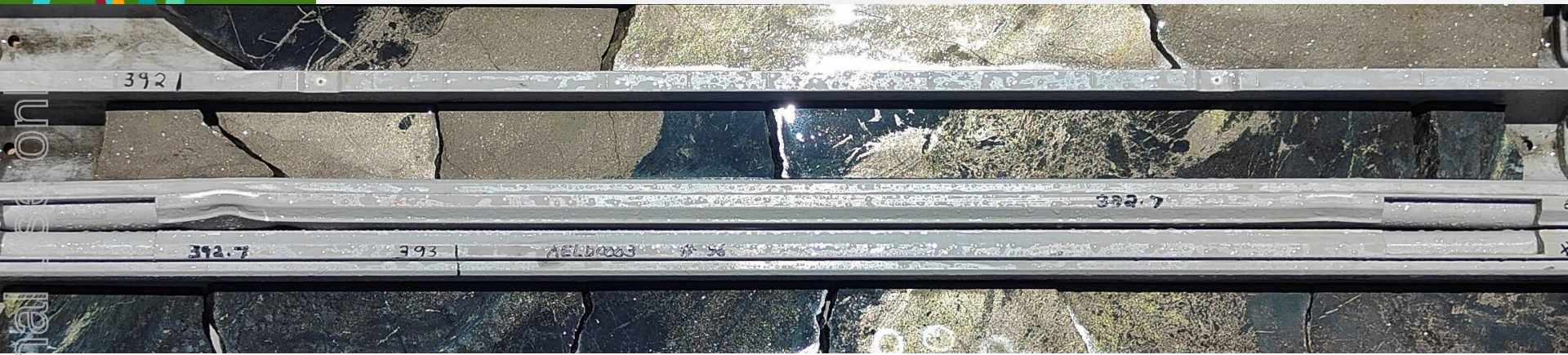
*ARL ASX 14 January 2022. ^ HRR ASX 26 November 2013.

Emu Lake Nickel Sulphide **Discovery**



Geological model confirmed

- ✓ Diamond drilling during Sep 2022 Quarter, intersected nickel sulphide mineralisation and demonstrated the potential for both high grade massive and disseminated nickel sulphides
- ✓ 3D modelling completed based on drilling and DHEM indicates prospective mineralised channels **at Binti are open up and down plunge**
- ✓ A 24-hole aircore drill program has been completed and intersected various thicknesses of prospective ultramafics within the Western Ultramafic sequence. Assays are pending
- ✓ Regional technical assessment is underway and generating exploration targets over the **largely unexplored 20km of strike of the prospective Western Komatiite Belt at Emu Lake**

An emerging nickel-copper-PGE sulphide camp

Australian Federal Government - Major Project Status

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Goongarrie West - Ionic Adsorption Clay **Rare Earth Discovery**

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Ardea Resources Limited

Goongarrie West Rare Earth Elements (REE) Prospect

N

1km

Intercept call outs - main intercept 500ppm TREO cutoff grade; higher intercept 1,000ppm TREO cutoff grade.

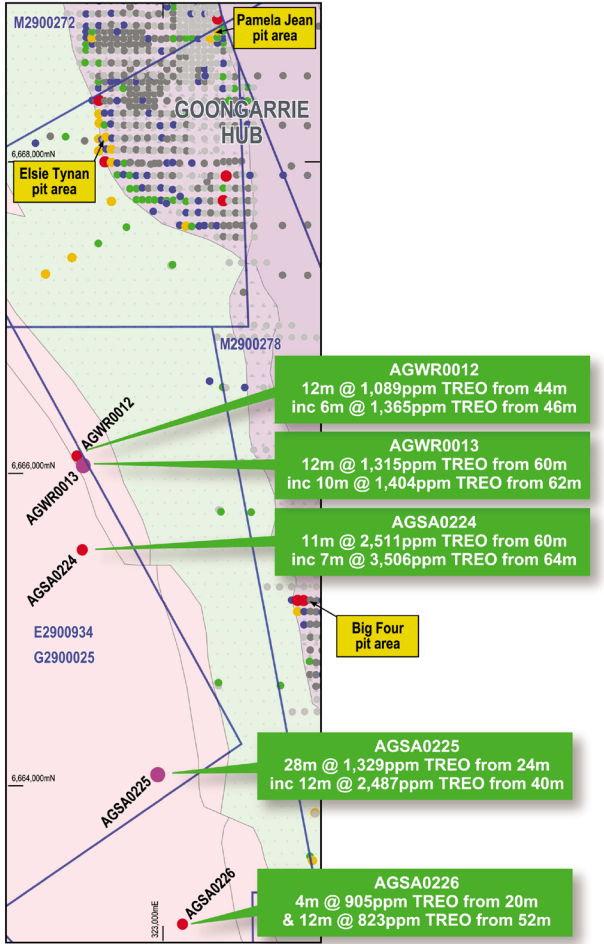
TREO = 15 REE (Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sm, Tb, Tm, Y, Yb)

LEGEND

Ardea Tenure

Maximum Nd Assays (ppm) in drill holes
- < 25 Nd ppm
- 25 to 50 Nd ppm
- 50 to 100 Nd ppm
- 100 to 200 Nd ppm
- 200 to 600 Nd ppm
- > 600 Nd ppm

Geology
- Uvk - ultramafic komatiite
- Uoc - ultramafic olivine cumulate
- Mvbm - basalt, high Mg
- Fig - granite



- ✓ As part of the KNP PFS, a drilling program designed to finalise the site layout at Goongarrie Hub, was to test Rare Earth Element (**REE**) targets previously generated by Ardea's Critical Minerals R&D
- ✓ Three single hole traverses, 1km apart, were designed at Goongarrie West as broad-spaced aircore drilling over a 3km NNW strike in a location containing no previous drilling, returned significant intercepts* of Total Rare-Earth-Oxides (TREO)
- ✓ Interpretation of results indicates the system is an Ionic Adsorption Clay (IAC) Rare Earth occurrence
- ✓ The drill intercept grades are considered particularly significant, precluding Goongarrie West as an infrastructure site option

In view of the drill results at Goongarrie West and as required by the WA Mines Act 1978, DMIRS has been notified that a discovery of economic interest has been made

*ARL ASX 30 January 2023 for full list of results

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Goongarrie West - Ionic Adsorption Clay **Rare Earth Discovery**

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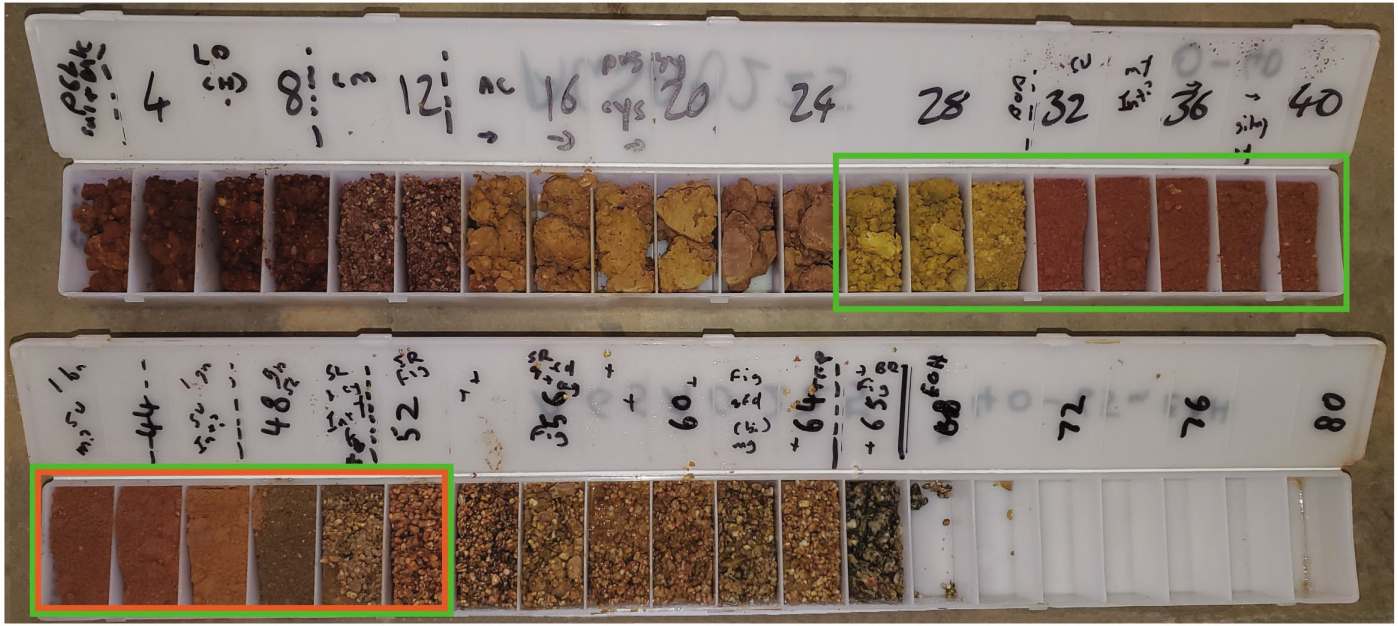
AGSA0225



28m @ 1,329ppm TREO from 24m (500ppm TREO cutoff grade)

12m @ 2,487ppm TREO from 40m (1,000ppm TREO cutoff grade)

*ARL ASX 30 January 2023

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Exploration **Lithium**

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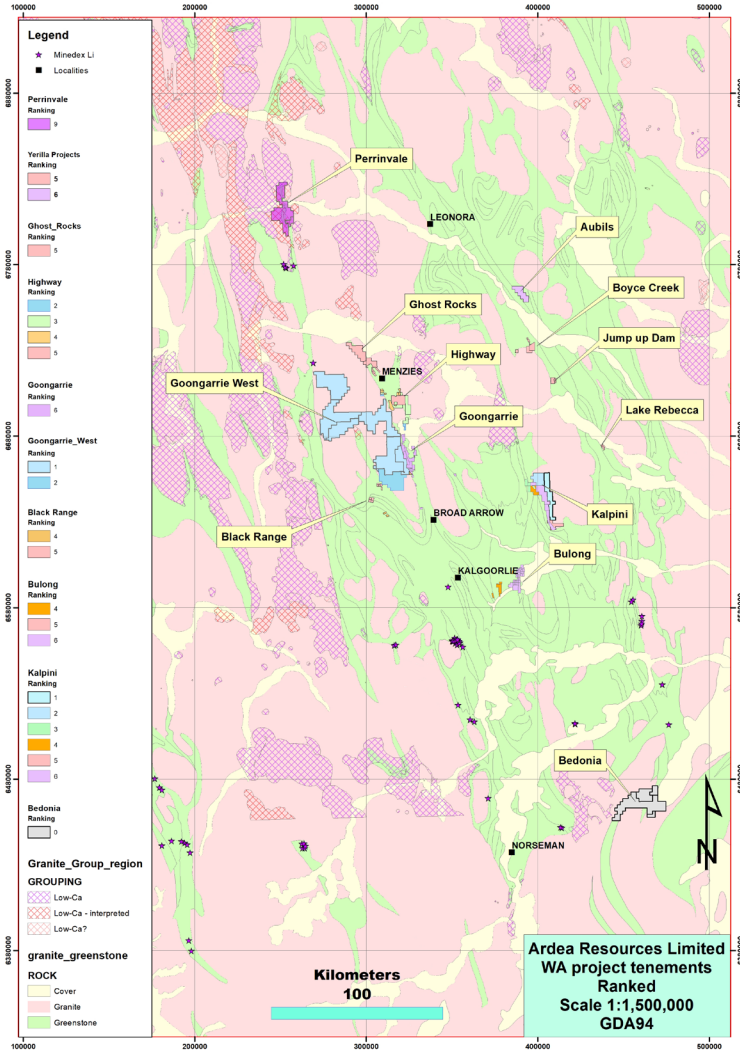
- ✓ Ardea's strategic KNP tenement portfolio offers unrivalled Critical Minerals exploration upside
- ✓ Leading consultant, CSA Global, have recently completed a desktop review of LCT pegmatite and REE potential over Ardea's tenements including a project ranking
- ✓ The Perrinvale project ranked as the highest priority for pegmatite-hosted LCT mineralisation, where multiple pegmatites have previously been mapped and several reconnaissance rock chip samples recently taken
- ✓ Ardea notes the ongoing LCT pegmatite exploration and resource development from several other ASX listed companies around Ardea's Perrinvale tenure
- ✓ Assay results from the more extensive recent rock chip sampling program at Perrinvale (27 samples) and Ghost Rocks (12 samples) are due in the March Quarter 2023
- ✓ The recent CSA Global review also identified the Bedonia project as having potential for ionic clay REE mineralisation
- ✓ Additional field work underway, including mapping and sampling



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*ARL ASX 22 Nov 2022

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Ardea

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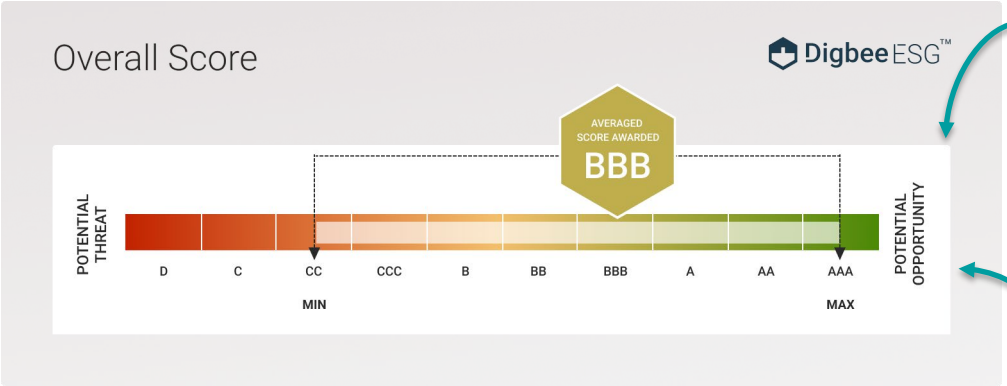

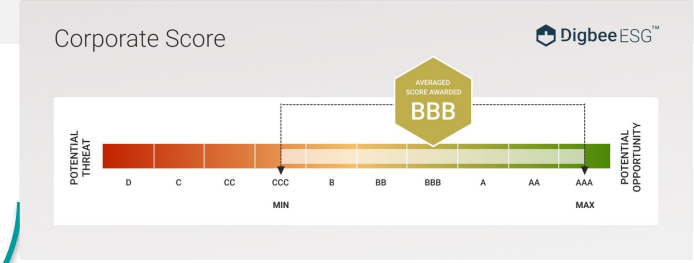

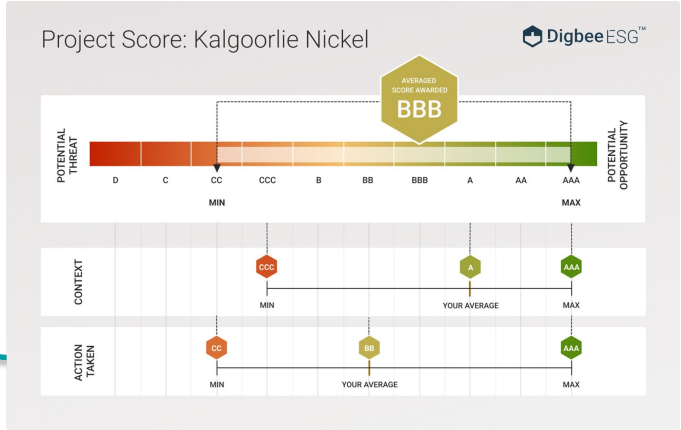

Commenting on the assessment, Mr Jamie Strauss, the founder and CEO of Digbee said:

"The leadership team of Ardea has shown, throughout their submission, clear incorporation of ESG principles and sustainability priorities as part of the Company's vision and value. This early-stage embracement of ESG, the commitment to minimise greenhouse gas emissions per tonne of nickel equivalent produced and the transparency to address areas of remediation identified in the Report, demonstrates a positive culture towards delivering a mine of the future."

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Strong **ESG** – Environment, Social and Governance

Ardea's work practices, designs and policies all aim to produce an ethical and sustainable source of nickel and cobalt

Mr Andrew Penkethman, Managing Director and CEO of Ardea:

"Our commitment to a transparent ESG strategy, reporting and continuous improvement program is exemplified by our partnership with Digbee ESG™. Now that the independent team of experts from Digbee ESG™ have identified Ardea's baseline credentials, we will now incorporate all their recommendations in order to assist in improving our Environmental, Social and Governance programs, which will remain a key focus in the development of our assets, and in upholding the highest levels of business integrity and ethics. The Board and staff of Ardea note our maiden overall ***ESG award of "BBB"*** *and acknowledge that this range provides some near-term opportunities for improvement which will be realised, as Ardea continues to grow and advance the KNP Goongarrie Hub towards development as a leading source of sustainable and ethical nickel-cobalt battery mineral supply."*

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The Ardea investment **fundamentals** are **compelling**…

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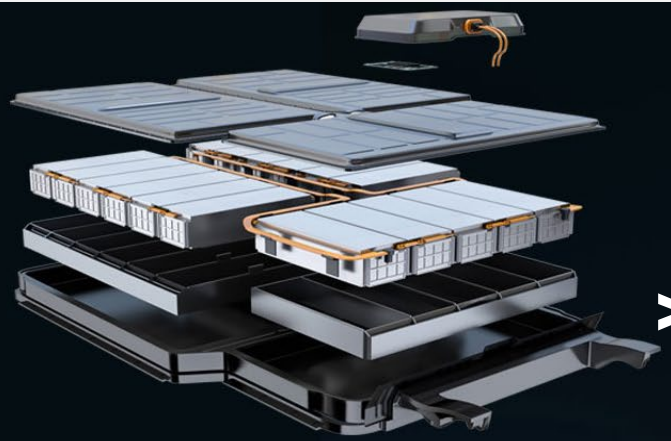
~40kg of Nickel^
Powering the typical
NCM811 Electric Vehicle (EV)

5.9Mt
contained Nickel
in the KNP*



Enough for
>147 million
Electric Vehicles

Successful local team

All Board members have lived and worked in the Eastern Goldfields of WA

All staff based in WA

Premier location

For mineral exploration, project development, leading ESG standards, jurisdiction, infrastructure and technical expertise

Nickel resource

5.9Mt contained nickel, 384kt contained cobalt plus Sc and other Critical Minerals*

100% off-take available to maximise upside

Proven flowsheet

Desirable MHP production with PCAM optionality and industry leading low carbon emissions

Market strength

KNP to fill gap between growing nickel demand and diminishing supply

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^ 12/07/2021 UBS – Battery Material Value Chain * See Appendix for resource breakdown and ASX release 16 June 2021.

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For further information

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Managing Director & CEO
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Ardea

Kalgoorlie Nickel Project

Sustainable and ethical
nickel-cobalt *for the battery mineral supply chain*

Appendices

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Ardea Resources Corporate Overview

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Board

Mathew Longworth	Non-Executive Chair
Andrew Penkethman	Managing Director & CEO
Ian Buchhorn	Executive Director

Listed on ASX (ARL)

Shares on Issue	171,502,772
Performance Rights	6,793,000
Options	4,000,000
Share Price (as at 9 Feb 2023)	$0.71
52 week high / low	$2.05 / $0.645
Cash (as at 31 Dec 2022)	$15.3 million
Market Capitalisation	$122 million
Board and Management	~12% equity
Top 40 Shareholders	~63% equity

Executive Management Team

Sam Middlemas	Company Secretary
Rebecca Moylan	Chief Financial Officer
Matthew Read	Project Director
Matthew McCarthy	GM - Exploration
Alex Mukherji	GM - Land Access & Compliance
Mike Miller	GM - Technical Services

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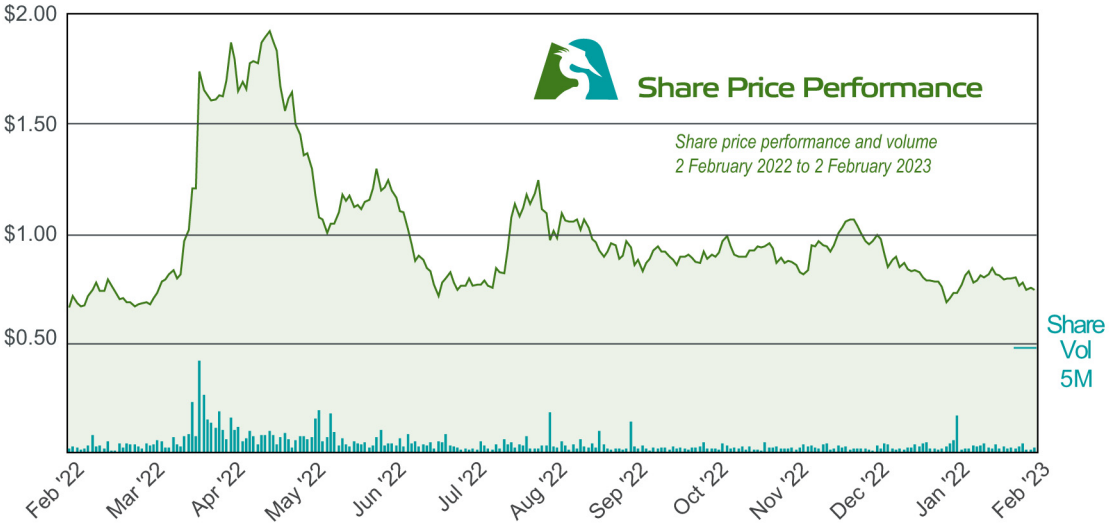

The Growth of **Ardea**

Prelisting	2017	2018	2019	2020	2021	2022	2023
2009 $35M PFS for KNP by Vale-Inco. Provided invaluable data to help expedite Ardea feasibility studies.	Ardea Recognition of the value cobalt and other Critical Minerals can add to the Kalgoorlie Nickel Project.	- 2018 1.5Mtpa PFS and 2.25Mtpa Expansion Study for the KNP Goongarrie Hub, delivers strong financial metrics. - Ardea pilot plant produces quality specification nickel and cobalt sulphate.	- NSW projects divested via Godolphin IPO - free in-specie shares to eligible shareholders. - Study streams and approvals continue for priority KNP.	- KNP Flowsheet is developed and optimised. - Nickel sulpide and gold targets at KNP and other tenements. - Divestment on non-core tenements through JV.	- Update to Goongarrie Hub high grade nickel and cobalt resource. - Engagement with potential Strategic Partners. - Ni sulphide discovery confirmed at Emu Lake. - Gold projects divested via KalGold Mining IPO - free in-specie shares to eligible shareholders.	Australian Federal Government - Major Project Status ESG CERTIFIED Digbee ESG™ - Awarded Major Project Status. - Metallurgical drilling at KNP Goongarrie Hub provides material for testwork and confirms resource model. - Mineralised Neutraliser (MN) concept confirmed and patent lodged. - KNP PFS 3.5Mtpa base case commences including Ore Reserve, and financial metrics update in progress. - Site visits hosted for potential Strategic Partners.	- Ore Reserve and financial metrics update. - PFS is expected to be completed June 2023. - DFS will commence after PFS subject to Strategic Partner requirements. - Ionic Adsorption Clay Rare Earth Discovery Goongarrie West, KNP
Transfer of KNP to ARL	**Feb - ARL lists on ASX**	**Global significance of KNP confirmed**	**ARL focus on KNP and other WA projects**	**KNP flowsheet work, plus successful NiS & Au exploration**	**KNP Goongarrie Hub work increases KNP Mineral Resource Emu Lake NiS discovery**	**KNP PFS 3.5Mtpa base case work streams plus engagement with potential Strategic Partners & ESG Accreditation awarded**	**KNP Updated financial metrics from PFS, DFS to commence subject to Strategic Partner requirements**

KNP Mineral Resource

773Mt @ 0.70% Ni and 0.05% Co | **830Mt @ 0.71% Ni and 0.046% Co** | **Upgrade in progress**

Kalgoorlie Nickel Project

*Sustainable and ethical **nickel-cobalt** for the battery mineral supply chain*

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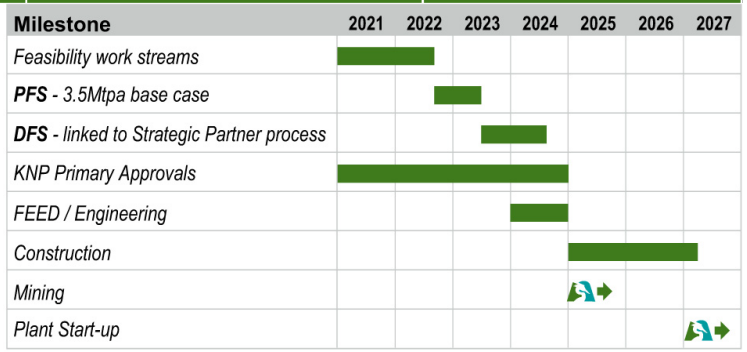

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Experienced team working with **quality partners**

Board and Executive Management Personnel

✓ **Balanced financial and corporate experience, strong technical expertise in exploration, discovery, project development, metallurgical optimisation, compliance and operational management**

Mathew Longworth Non-Executive Chair

33 years' experience across exploration, project evaluation/development, operations and corporate management. Invaluable experience on the key Ardea exploration and development projects, being the KNP nickel-cobalt-scandium deposits.

Andrew Penkethman Managing Director, CEO

Resources sector executive with over 28 years' experience, including project evaluation, exploration, discovery, resource development, feasibility study management, permitting, stakeholder engagement, mine development and operations. Extensive ASX, TSX and AIM experience.

Ian Buchhorn Executive Director

Mineral Economist and Geologist with over 40 years' experience. Lived and worked in the Eastern Goldfields for over 20 years undertaking exploration, project evaluation and development. Operated as Registered Mine Manager in the Kalgoorlie Goldfields, City Councilor 1992 – 2006.

Sam Middlemas Company Secretary

Chartered Accountant (CA) with more than 30 years' experience providing financial and corporate secretarial services.

Rebecca Moylan Chief Financial Officer

Experienced CFO with expertise in financial and corporate management, accounting, project financing and contract negotiation including 12 years in the mining industry. This has included positions as CFO and Company Secretary of several ASX-listed companies.

Matthew Read Project Director

25 years' experience in project and commercial leadership roles for several major ASX-listed and private companies, covering project development, commissioning, commercial aspects, team building and joint venture management expertise in complex major resources projects.

Matthew McCarthy GM- Exploration

Geologist with over 20 years experience in minerals exploration and business development in all stages of the exploration process across several commodities, with a focus on nickel exploration. Has been involved in major greenfields and brownfields nickel sulphide and gold discoveries, and completed resource definition programs, scoping and feasibility studies.

Alex Mukherji GM- Land Access & Compliance

Geologist with over 25 years mining industry experience including compliance reporting, drafting and negotiating Native Title, land access, commercial agreements with assessment of business development opportunities. Corporate representation with stakeholders, including State and Commonwealth agencies.

Mike Miller GM- Technical Services

Process Engineer with over 30 years' experience in hydrometallurgical operations with a primary focus on nickel-cobalt production. Extensive study management experience with leading engineering firms.

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KNP Superior HPAL Intensity

- ✓ Good ore grade + good slurry density = Lower Capex & Opex $$
- ✓ Atmospheric leach = stable operation, utilizes saprolite resource
- ✓ MHP Product = known technology & good market acceptance

Operating data from Australian HPAL Producers

Performance Driver	Ardea	Bulong#	Cawse#	Murrin	RNO^	Metric	Ardea Rank	Comment
Atmospheric Leach	Yes	No	No	No	Yes	-	#1	Stable operation and full resource utilisation
HPAL Feed Density	45%	31%	35%	38%	42%	% Solids	#1	The higher the better = Maximises plant throughput
Residence Time	70	75	105	90	60	minutes	#2	The lower the better = Maximises plant throughput
Slurry Grade Ni	7.55	2.89	3.07	3.87	7.39	Ni kg/m3	#1	The higher the better = Increased revenue stream
Slurry Grade Co	0.59	0.23	0.24	0.34	0.31	Co kg/m3	#1	The higher the better = Strategic Co-Product credits

Data Sources
Ardea – Goongarrie Hub testwork results from PFS and Expansion Study, ASX release 28 March 2018 & Goongarrie Expansion Study, 24 July 2018 and ongoing project assessment as part of completing the DFS.
Bulong, Cawse, Murrin - ALTA 1999, An Engineering Comparison of the Three Treatment Flowsheets In WA Nickel Laterite Projects.
RNO – ALTA 2001, Observations from the RNO Pilot Plant at Lakefield Research, 2000 AD.

^Ravensthorpe Nickel Operation (RNO) figures based on design numbers on upgraded beneficiated ore from the Halleys Deposit which has since been mined out. # Bulong & Cawse – care and maintenance

Ardea data is based on non-beneficiated material (with always an option to beneficiate selected KNP geo-met types, notably at Highway & Goongarrie Hill).

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KNP Mineral Resource

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Kalgoorlie Nickel Project nickel-cobalt JORC Code (2012) Mineral Resource Estimate

Camp	Prospect	Resource Category	Size (Mt)	Ni (%)	Co (%)	Contained Metal Ni (kt)	Contained Metal Co (kt)
KNP TOTAL		Measured	22	0.94	0.079	207	17
		Indicated	357	0.72	0.047	2,584	168
		Inferred	452	0.68	0.044	3,088	199
	GRAND TOTAL	***Combined***	***830***	***0.71***	***0.046***	***5,879***	***384***

Note: 0.5% nickel cutoff grade used to report resources. Note figures are rounded to reflect degree of certainty and may not tally.
The information shown on this slide has been previously released on the ASX platform by Ardea in ASX release 16 June 2021.

In accordance with the Australian Securities Exchange Limited Listing Rules Appendix 5A:

The information in this report that relates to KNP Exploration Results is based on information originally compiled by previous full time employees of Heron Resources Limited and or Vale Inco. The Exploration Results and data collection processes have been reviewed, verified and re-interpreted by Mr Ian Buchhorn who is a Member of the Australasian Institute of Mining and Metallurgy and currently an executive director of Ardea Resources Limited. Mr Buchhorn has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the exploration activities undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Buchhorn consents to the inclusion in this report of the matters based on his information in the form and context that it appears.

The information in this report that relates to Mineral Resources for the Goongarrie Hill, Goongarrie South, Big Four, Scotia Dam and Highway nickel-cobalt deposits that comprise the Goongarrie Hub is based on information compiled by Mr James Ridley who is a Member of the Australasian Institute of Mining and Metallurgy, a full time employee of Ardea Resources and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Ridley consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

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Goongarrie Hub Mineral Resource (0.8% Ni cut-off)

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Summary of Mineral Resource Estimate from the Goongarrie Hub, based on a 0.8% Ni cut-off grade, comprising resources at Goongarrie Hill, Goongarrie South, Highway, Big Four, Scotia Dam and Highway (ASX release 16 June 2021).

Deposit	Resource Category	Tonnes (Mt)	Ni %	Co %	Contained Metal Ni (kt)	Contained Metal Co (kt)
Goongarrie Hill	Indicated	5.3	0.92	0.050	49	2.6
	Inferred	1.9	0.92	0.034	17	0.6
	Subtotal	7.2	0.92	0.046	66	3.3
Goongarrie South	Measured	11.0	1.13	0.106	125	11.6
	Indicated	21.1	0.99	0.071	208	15.0
	Inferred	1.2	0.92	0.043	11	0.5
	Subtotal	33.3	1.03	0.081	344	27.1
Big Four	Indicated	12.1	0.97	0.068	118	8.3
	Inferred	2.7	0.94	0.062	25	1.7
	Subtotal	14.7	0.97	0.067	143	9.9
Scotia Dam	Indicated	2.9	0.98	0.108	29	3.2
	Inferred	1.4	1.02	0.057	14	0.8
	Subtotal	4.3	0.99	0.091	43	4.0
Highway	Indicated	15.1	1.01	0.053	152	8.0
	Inferred	3.7	0.98	0.053	36	2.0
	Subtotal	18.8	1.00	0.053	188	10.0
Combined Deposits	Measured	11.0	1.13	0.106	125	11.6
	Indicated	56.5	0.98	0.066	556	37.1
	Inferred	10.8	0.95	0.051	103	5.6
	Grand Total	**78.3**	**1.00**	**0.069**	**784**	**54.3**

Note figures are rounded to reflect degree of certainty and may not tally.

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Goongarrie Hub Mineral Resources inc Sc (0.5% Ni cut-off)

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Summary of Mineral Resource Estimate from the Goongarrie deposits based on a 0.5% Ni cut-off grade (ASX release 15 February 2021).

Deposit	Resource Category	Tonnes (Mt)	Ni %	Co %	Contained Metal Ni (kt)	Contained Metal Co (kt)	Sc Resources Mt	Sc Resources Sc ppm
Goongarrie Hill	Indicated	40	0.65	0.037	260	14.7	10.5	16
	Inferred	29	0.60	0.025	178	7.3	2.0	16
	Subtotal	69	0.63	0.032	438	21.9	12.5	16
Goongarrie South	Measured	18	0.94	0.085	172	15.4	18.2	40
	Indicated	82	0.71	0.049	587	40.2	53.1	23
	Inferred	10	0.64	0.033	61	3.1	5.5	24
	Subtotal	110	0.75	0.053	820	58.7	76.8	27
Big Four	Indicated	49	0.71	0.047	345	22.9	31.9	24
	Inferred	14	0.68	0.043	95	6.1	2.9	24
	Subtotal	63	0.70	0.046	440	28.9	34.8	24
Scotia Dam	Indicated	12	0.71	0.065	82	7.4	11.2	25
	Inferred	5	0.72	0.043	37	2.2	0.6	22
	Subtotal	17	0.72	0.058	118	9.6	11.7	25
GNCP Total	Measured	18	0.94	0.085	172	15.4	18.2	40
	Indicated	182	0.70	0.047	1,274	85.1	106.6	23
	Inferred	58	0.64	0.032	371	18.6	11.0	23
	Grand Total	**259**	**0.70**	**0.046**	**1,817**	**119.2**	**135.8**	**25**

Note figures are rounded to reflect degree of certainty and may not tally.

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