A globally significant source of nickel-cobalt and scandium in Western Australia

Ardea

RIU Explorers Conference

15-17 February 2022

Ardea Resources Limited

Kalgoorlie Nickel Project
Globally significant battery mineral supply

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Important notice

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), Goongarrie Nickel Cobalt Project Update (8 April 2019), GNCP High Grade Resource - 60 million tonnes at 1.0% nickel (15 February 2021), Basal contact nickel sulphide intersected at Ardea's Emu Lake (27 April 2021), CSIRO/Ardea research at Goongarrie BTZ – insights for nickel sulphide and gold targets (27 May 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), Ardea Annual Report 2021 (24 September 2021), FBICRC signs contract for $18M flagship Cathode Precursor Production Pilot Plant (22 October 2021), Quarterly Activities Report - September 2021 (27 October 2021), Goongarrie Hub Feasibility Study Update (15 November 2021), Emu Lake Nickel Sulphide Discovery (3 December 2021, 14 January 2022, 7 February 2022), Goongarrie Hub Feasibility Study Update (25 January 2022), Quarterly Activities Report – December 2021 (28 January 2022), and High-Grade Nickel-Cobalt from Highway Metallurgical Drilling (11 February 2022).

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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.

No stock exchange, regulation services provider, securities commission or other regulatory authority has approved or disapproved the information contained in this news release.

Compelling **nickel-cobalt market** fundamentals

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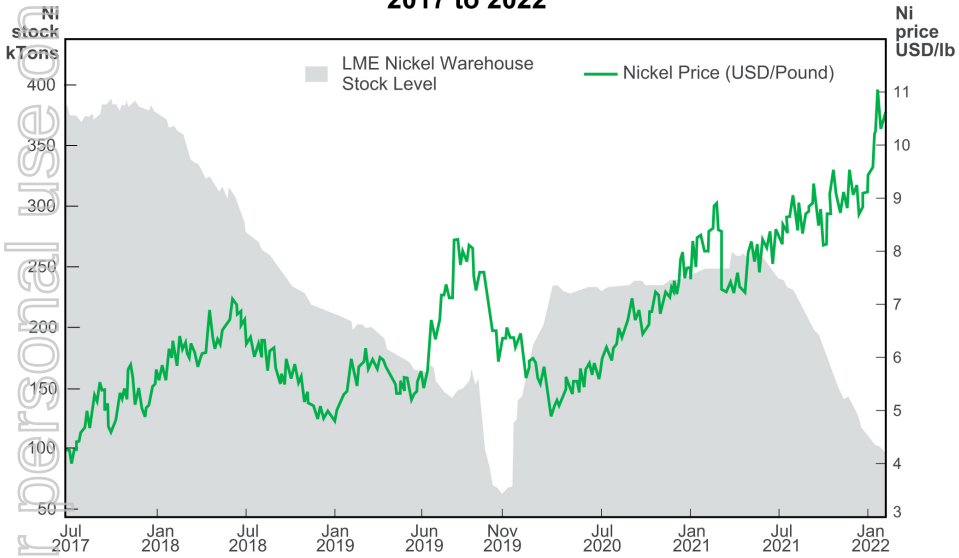
Nickel Price relative to LME Warehouse stock levels 2017 to 2022



adapted from Kitco LME Stock charts and dailymetalprice.com

Cobalt Price 2017 to 2022

adapted from dailymetalprice.com

- ✓ Nickel and cobalt stocks near all time lows and declining
- ✓ Nickel price at 10-year highs and climbing
- ✓ The perfect combination to support development of the largest nickel-cobalt project in Australia, the KNP, and to make value adding nickel sulphide discoveries

The **money go round**

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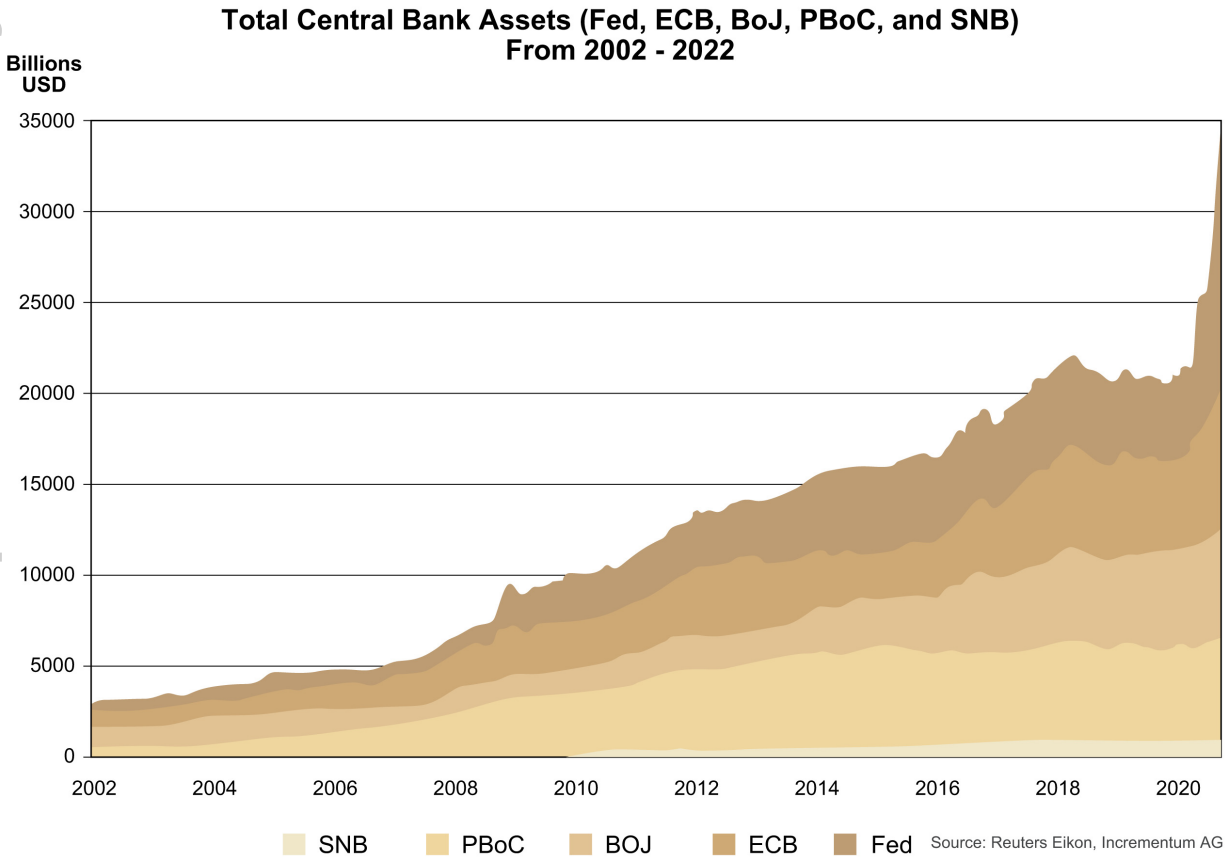

- ✓ Central banks printing money at unprecedented levels and growing asset levels
- ✓ Government support to diversify global supply chains at record levels
- ✓ Support for the development of large-scale mineral projects to enable the transition to a low carbon future continues to accelerate
- ✓ ECA funding support under favorable terms more accessible than ever
- ✓ Ideal combination to support development of the largest nickel-cobalt project in Australia, the KNP

Ardea offers exceptional nickel-cobalt leverage operating within a global leading ESG Framework

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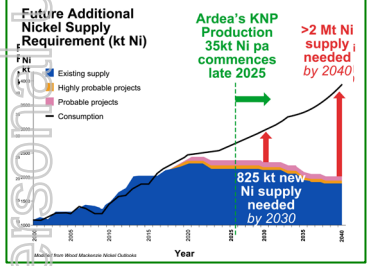
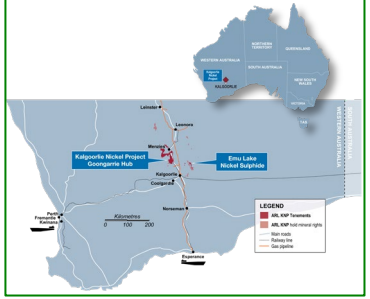
Market strength

KNP to fill gap between growing nickel demand and diminishing supply



Premier location

for jurisdiction, infrastructure and technical expertise

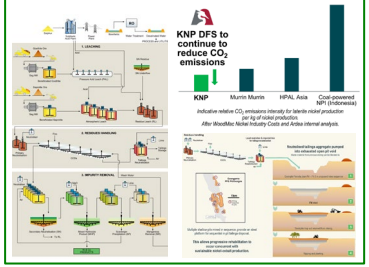


Nickel resource

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

Enhanced flowsheet

Desirable MHP production with industry leading low carbon emissions



Strong news flow

GAS study completed supporting creased project scale of 3.5Mtpa for DFS

Approvals underway as is accelerated engagement with stakeholders

Metallurgy testwork in progress

Nickel Sulphide discovery at Emu Lake

~40kg of Nickel^

Powering the typical NCM811 Electric Vehicle (EV)

~5.9Mt

contained Nickel in the KNP*

Enough for

>147,000,000

Electric Vehicles

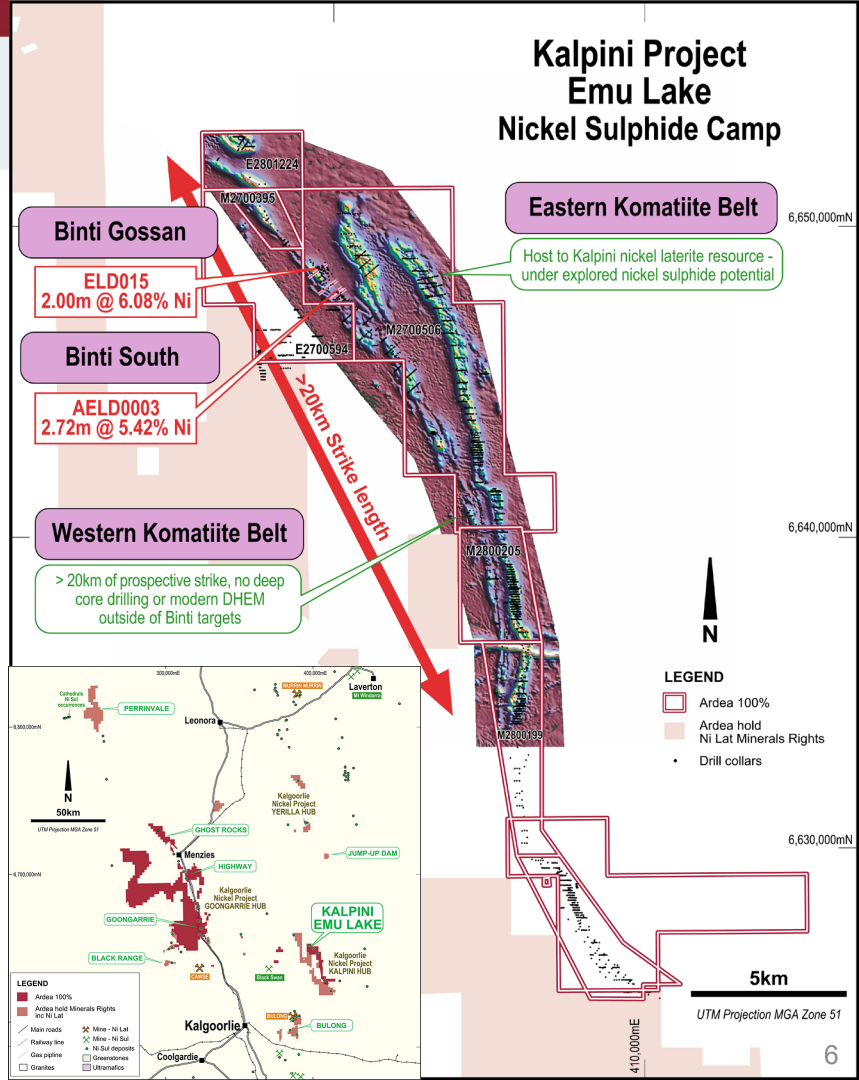
^ 12/07/2021 UBS – Battery Material Value Chain

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

Nickel Sulphide **Discovery**

Nickel Sulphide discovery at Emu Lake

- ✓ 70km north-east of Kalgoorlie on a granted mining lease within 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.
  - ✓ **Discovery confirmed on an intact felsic footwall demonstrating thermal erosion textures analogous with the Silver Swan nickel deposit 35km west.**
- ✓ Historic exploration at the **Binti Gossan Prospect** located 1km northwest along strike from Binti South within an intact felsic footwall contact of the Central Ultramafic (CU):
  - ✓ ELD015: **2.0m 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^
- ✓ Multiple flow surfaces identified and all **prospective for hosting nickel sulphide**.
- ✓ **20km of fertile komatiite strike at Emu Lake**.
- ✓ Significant **scope to extend** the Binti Gossan and Binti South discoveries **and make additional nickel sulphide discoveries**.



*ARL ASX 14 Jan 2022. ^ HRR ASX 26 Nov 2013

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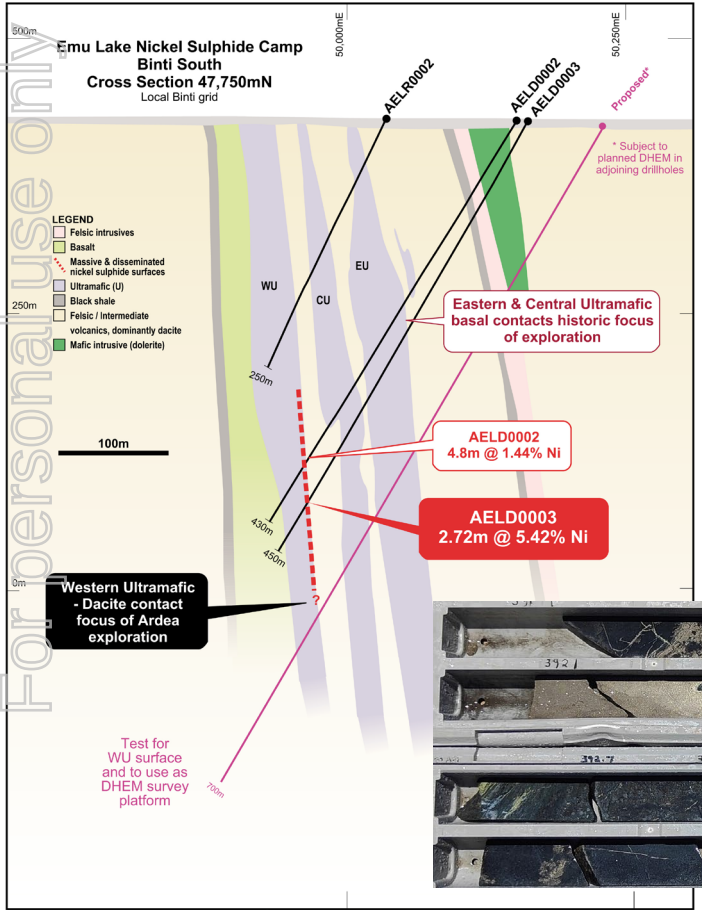
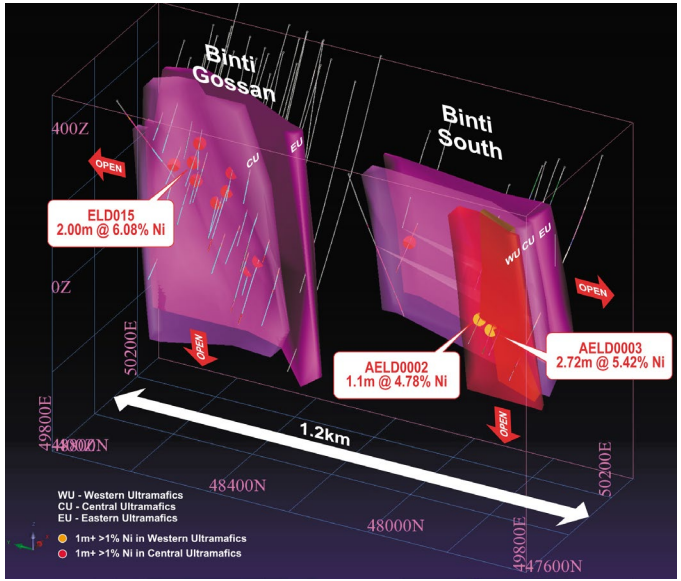
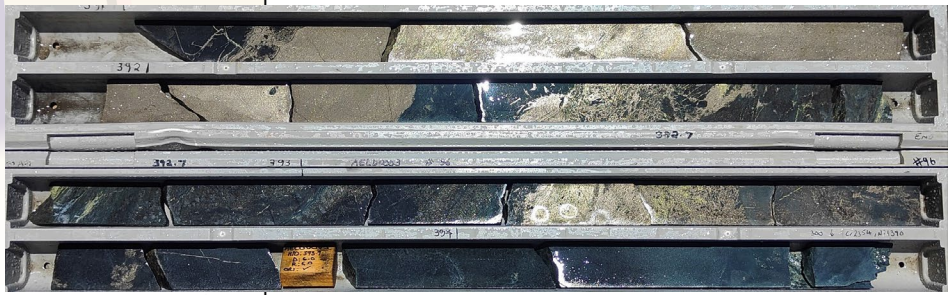
Emu Lake Nickel Sulphide **Discovery**







Follow-up work

Extensive exploration planned, incl:

- Drilling and DHEM
  - Binti South Prospect
  - Binti Gossan Prospect
  - Step-out over entire 20km strike extent
- 3D geological model to locate where the Western Ultramafic is untested

An emerging nickel sulphide camp

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Developing KNP – Australia's next major Ni-Co project

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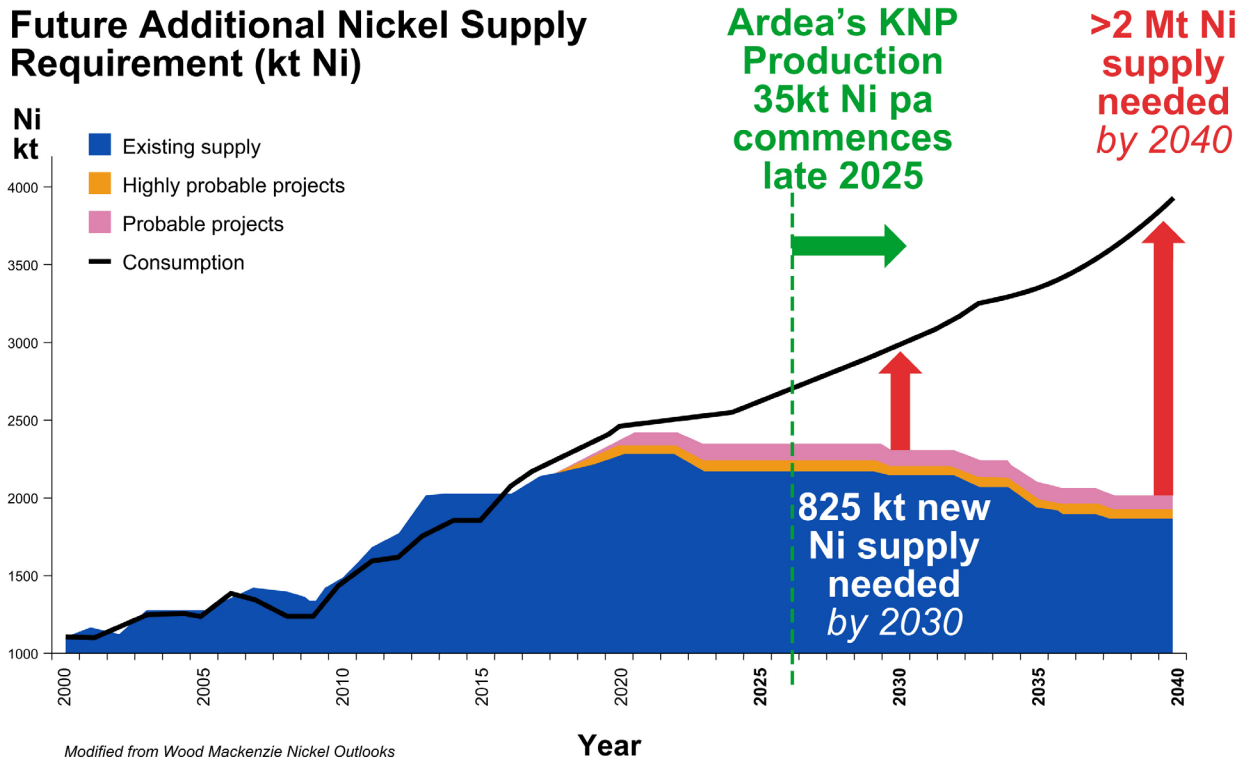
Kalgoorlie Nickel Project (**KNP**) to fill the gap between growing nickel demand and diminishing supply

- ✓ Without nickel laterites there can be no battery revolution
- ✓ Ardea can supply the battery revolution with essential nickel-cobalt from its globally significant resource using proven technology



World's best operating jurisdiction

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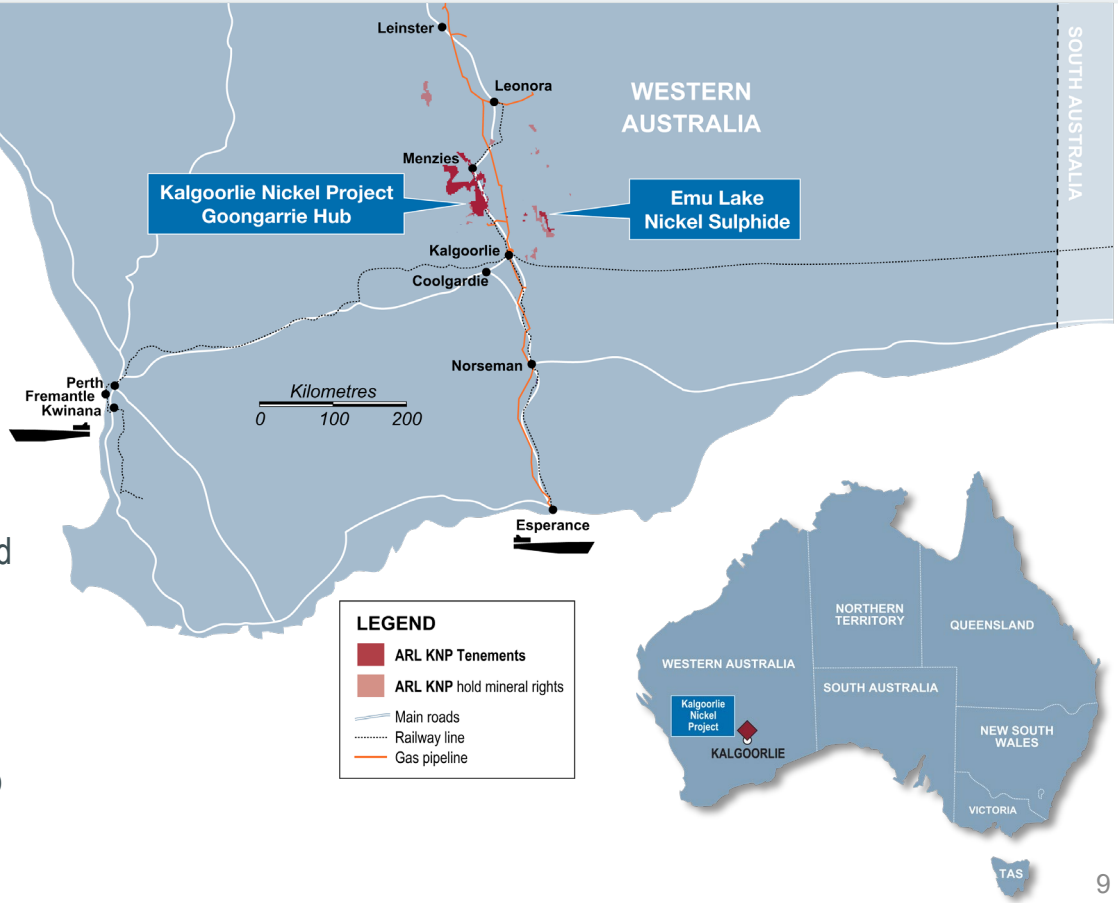
- All Projects located in Western Australia (WA)
- >3,300km^2 ground position in Eastern Goldfields
- City of Kalgoorlie-Boulder is the prime resource development and operating destination within WA
  - ✓ Very strong mining support from Local Government and Community
  - ✓ Multitude of world-class mining 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
- Direct infrastructure links to key Kwinana battery hub and Southern Ports - Esperance



Globally Significant Resource

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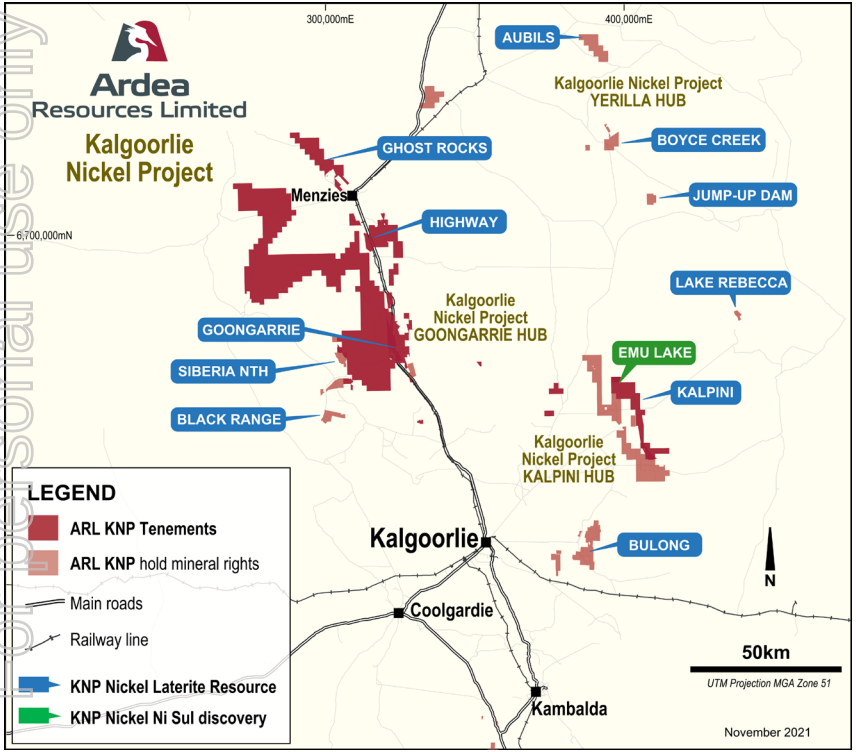

✓ **KNP Mineral Resource 5.9Mt contained nickel and 384kt contained cobalt***

✓ **3.39kt scandium, (Goongarrie deposits) with significant additional upside**

✓ **Pipeline of other Critical Minerals**

✓ **Globally significant nickel & cobalt Mineral Resource**

✓ **Sustainable & ethical supply of nickel & Critical Minerals for low carbon future**

Goongarrie Hub
- High grade component -

78Mt at 1.0% Ni and 0.069% Co*

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

- Kalgoorlie Nickel Project (**KNP**) Feasibility Study (**FS**) scope covering **Goongarrie Hub** including satellite pits at Highway and Siberia North
- Two 1.5 Mtpa High Pressure Acid Leach (**HPAL**) trains, supplemented with a 0.5Mtpa Atmospheric Leach (**AL**) processing operation (**3.5Mtpa**)
- FS evaluating the potential revenue contributions from mineralised neutraliser, scandium and other Critical Minerals, including Rare Earth Elements (**REE**) throughout the KNP

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

Globally Significant Resource

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- Kalgoorlie Nickel Project (**KNP**) tops the table in recent Geological Survey of Western Australia publication February 2022
- KNP is the largest nickel-cobalt resource in Australia and one of the largest in the world
- All Goongarrie Hub resources located on granted mining leases fast tracking path to production

Nickel projects with resources >100 Kt contained nickel

Resources estimated according to JORC 2012

Project	Status	Owner	Resources (Mt)	Av. grade (% Ni)	Contained Ni (Kt)	Av. grade (% Co)	Contained Co (t)	Resource date
Kalgoorlie Nickel Project[4]	Pre-feasibility	Ardea Resources	830.0	0.71	5879	0.05	384 000	16/06/2021
Mt Keith[1]	Operating	BHP Group (Nickel West)	543.7	0.58	3139			30/06/2021
Weld Range*	Exploration	EV Metals	385.3	0.64	2466	0.04	154 120	29/10/2013
Murrin Murrin	Operating	Glencore	235.7	0.99	2340	0.08	181 198	31/12/2020
Leinster[2]	Operating	BHP Group (Nickel West)	194.8	1.04	2024			30/06/2021
Wingellina	Feasibility	Metals X	215.8	0.91	1952	0.07	151 087	30/06/2016
Ravensthorpe	Operating	First Quantum / Pohang Iron and Steel Co.	331.8	0.57	1904	0.03	87 270	31/12/2020
Avalon*	Exploration	Wingstar Investments	169.8	0.83	1403			31/12/2012
West Musgrave	Pre-feasibility	Oz Minerals	393.3	0.31	1227	0.01	48 236	09/12/2020
Cawse*	Exploration	Wingstar Investments	176.5	0.69	1220			31/12/2013
Honeymoon Well*	Exploration	BHP Group (Nickel West)	176.8	0.69	1218			30/06/2021
NiWest	Pre-feasibility	GME Resources	85.1	1.03	878	0.07	55 320	30/06/2019
Cosmos	Under development	Western Areas	64.4	0.97	625			30/09/2020
Wilconi	Exploration	A-Cap Resources / Blackham Resources	78.8	0.74	583	0.07	55 160	17/09/2019
Julimar	Exploration	Chalice Mining	330.0	0.16	523	0.02	53 000	09/11/2021
Jericho[3]	Exploration	BHP Group (Nickel West)	74.0	0.55	407			30/06/2021
Forrestania	Operating	Western Areas / Great Western Exploration	17.9	1.61	287			30/06/2021
Savannah	Operating	Panoramic Resources	13.5	1.56	210	0.10	13 328	07/05/2020
Canegrass*	Exploration	Huntsman Exploration	29.6	0.71	209	0.06	17 760	27/11/2007
Nova–Bollinger	Operating	IGO	11.8	1.76	208	0.06	6 694	31/12/2020
Kambalda	Operating	Mincor Resources	5.3	3.80	199			30/06/2021
Silver Swan – Black Swan	Feasibility	Poseidon	30.9	0.63	195			30/06/2019
Julia*	Exploration	Wingstar Investments	25.9	0.74	193			31/10/2011
Black Hills*	Exploration	Zetek Resources / Western Resources	30.0	0.64	192	0.03	9 000	18/09/2006
Quicksilver	Exploration	Golden Mile Resources	26.3	0.65	170	0.04	11 354	19/11/2018
Mt Edwards	Exploration	Neometals	10.2	1.60	164	0.05	1 387	30/06/2021
Pardoo	Exploration	Caeneus Minerals	50.0	0.30	152	0.03	15 000	31/03/2010
Windarra	Exploration	Poseidon	9.7	1.53	148			16/07/2014
Mt Thirsty	Pre-feasibility	Conico / Barra Resources	26.8	0.52	140	0.12	31 543	09/09/2019
Norseman	Exploration	Galileo	25.1	0.49	122	0.11	27 386	11/12/2018
Grey Dam	Exploration	Carnavale Resources	14.6	0.75	110	0.05	7 174	26/02/2019
Pyke Hill	Exploration	Cougar Metals	10.5	0.99	104	0.09	9 030	30/06/2018
Sherlock Bay	Exploration	Sabre Resources / International Exploration	24.7	0.40	100	0.02	5 420	31/05/2018

Resource estimates have been rounded
[1] Includes the JORC 2004 resource for Lake Rebecca
* Resource estimates are not JORC 2012 compliant
[2] Includes Yakabindie resources
[3] Includes Cliffs and Venus resources
[4] Includes West Jordan resources

Sulfide | Laterite | Laterite + sulfide

For more information

Geological Survey of Western Australia www.dmirs.wa.gov.au/gswa
MINEDEX www.dmirs.wa.gov.au/minedex
GeoVIEW.WA www.dmirs.wa.gov.au/geoview

Contact us

Sarah Sargent
Geological Survey and Resource Strategy Division
Email: minerals.investors@dmirs.wa.gov.au
Tel: +61 8 9222 3890

Government of **Western Australia**
Department of **Mines, Industry Regulation and Safety**

December 2021

Geological Survey of Western Australia

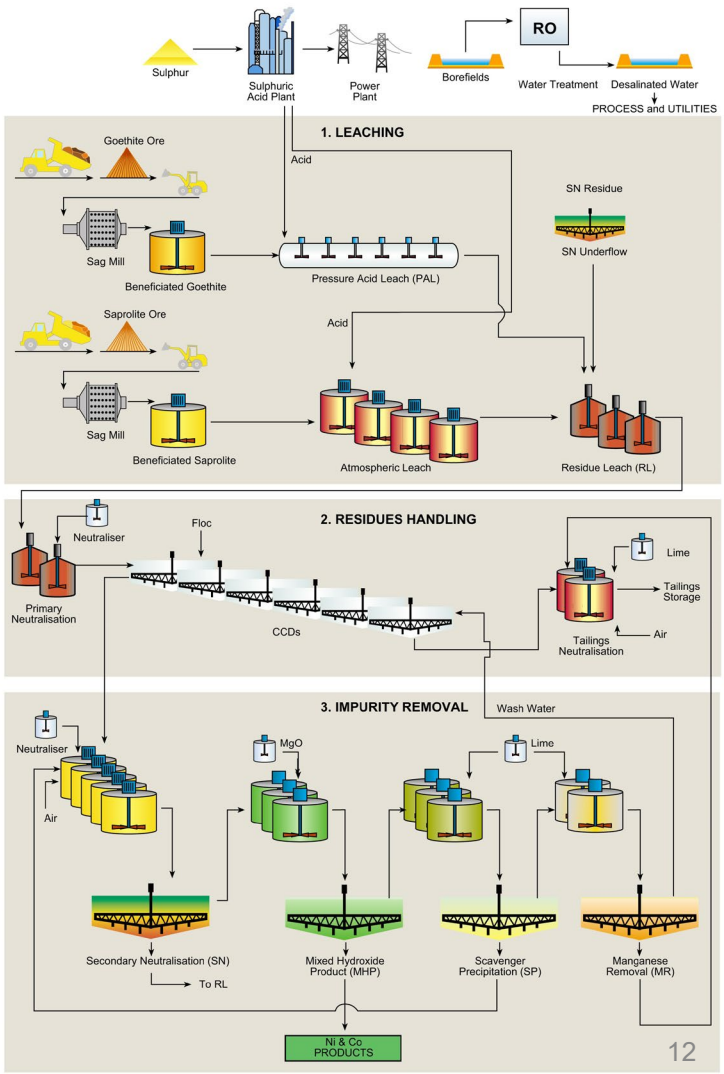
Enhanced flow sheet

- ✓ Premium goethite ore (excellent comminution, less abrasive, lower maintenance)
- ✓ MHP sale product during ramp up, in high demand
- ✓ Evaluating PCAM production through FBICRC membership
- ✓ Additional Critical Mineral by-products (current bench-scale metallurgy)

Process Metallurgy

- ✓ 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
- ✓ Water Options =Using pit drainage + pending licensed borefield
- ✓ MHP = Known technology & chosen feedstock for Lithium Ion Batteries
- ✓ Potential for significant by-product credits from Sc, in addition to base case Ni-Co

* See Slide 22 for data.



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KNP: Sustainable and Ethical Nickel Production

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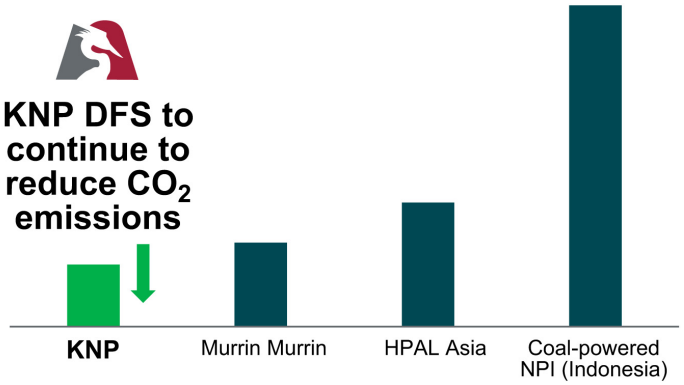
Off Grid & Low Carbon Footprint

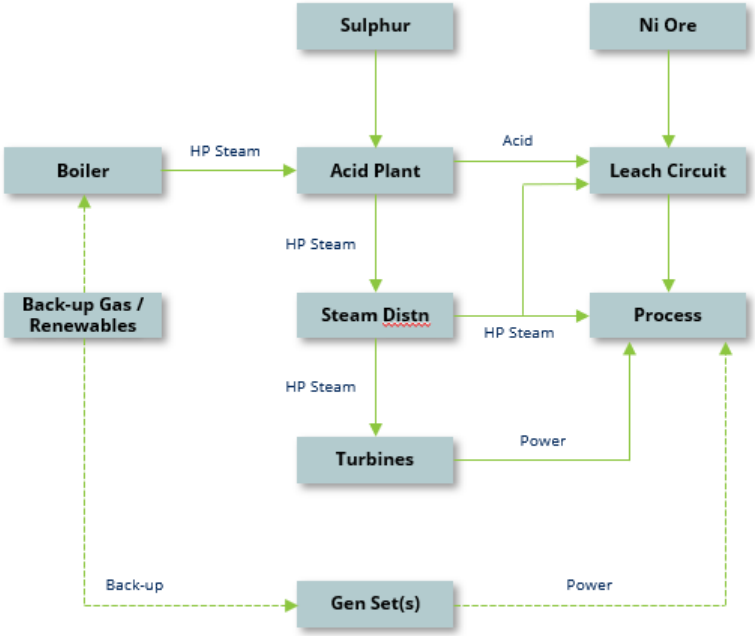
- DFS development plan, to include both a High Pressure Acid Leach (**HPAL**) and an Atmospheric Leach (**AL**) circuit
  - ✓ AL will assist with full utilisation of the mineral resource and heat generated from sulphuric acid production (onsite), which will be used for both process purposes and for generating electrical power via steam turbines
- Preliminary analysis indicates 100% of KNP electrical power requirements can be produced from acid plant byproduct steam, allowing the project to remain off-grid
- Ardea's ongoing work continues to reduce carbon emissions further to position the Company as an industry leader in the production of sustainable and ethical nickel



Indicative relative CO_2 emissions intensity for laterite nickel production per kg of nickel production.
After WoodMac Nickel Industry Costs and Ardea internal analysis.

KNP Acid plant – Steam Power Flow Diagram

- Heat generated from on-site acid plant will be used for generating electrical power via steam turbines



Source: WoodMac Nickel Industry Costs, Wei et al Energy Consumption and Greenhouse Gas Emissions of Nickel Products, 2020 and Ardea internal analysis.

Proven technology

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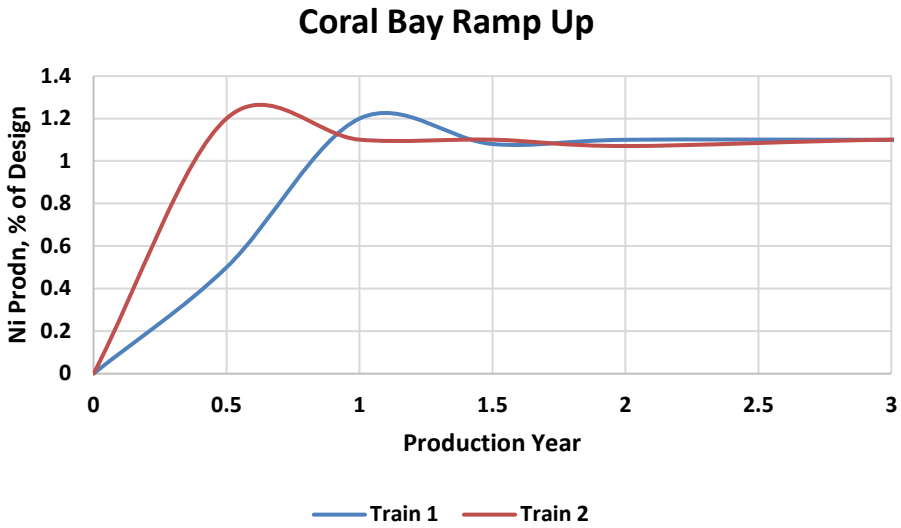
Coral Bay HPAL Example

- ✓ HPAL chemistry is well known and has been applied successfully since the 1960s
- ✓ Single reactor
- ✓ Recovery of waste heat = Energy savings

Ramp up rates

- ✓ Horizontal autoclave at Coral Bay built Train 1: 2005, Train 2: 2008
- ✓ At Coral Bay name plate production capacity exceeded in first year of production and thereafter
- ✓ Goongarrie Hub flow sheet and materials of construction all successfully utilised at existing operations



The information on this slide is based on the Coral Bay HPAL process facility in the Philippines that is not an asset of Ardea, but is shown as an example of the successful implementation of HPAL technology.

Experienced team working with quality partners

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Feasibility Study

- ✓ Gap Analysis Study (GAS) completed and DFS underway
- ✓ Goongarrie Hub Hydrogeology Drilling completed – Rockwater & Harrington
- ✓ Goongarrie Hub Metallurgical Drilling completed – contractor DDH1
- ✓ Metallurgical Testwork Underway – ALS Laboratory Group
- ✓ Financial modelling - Ockham Group UK
- ✓ Stakeholder engagement accelerated, running parallel with DFS work

Other Work Streams

- ✓ Future Battery Industry Co-operative Research Centre (FBICRC), active member
- ✓ CSIRO joint research projects in nickel:
  - ✓ Hylogger3 study completed for process mineralogy
  - ✓ Completed CSIRO/Ardea research at Goongarrie BTZ – insights for nickel sulphide and gold targets, notably structural preparation and weathering depth
  - ✓ Nickel Sulphide Discovery at Emu Lake and other targets being assessed

Pump testing the Goongarrie Hub water extraction licence application covering the East Goongarrie Channel on granted Ardea Mining Lease tenure. The Goongarrie Hub pit areas require dewatering in any event ahead of mining.

KNP Development Plan

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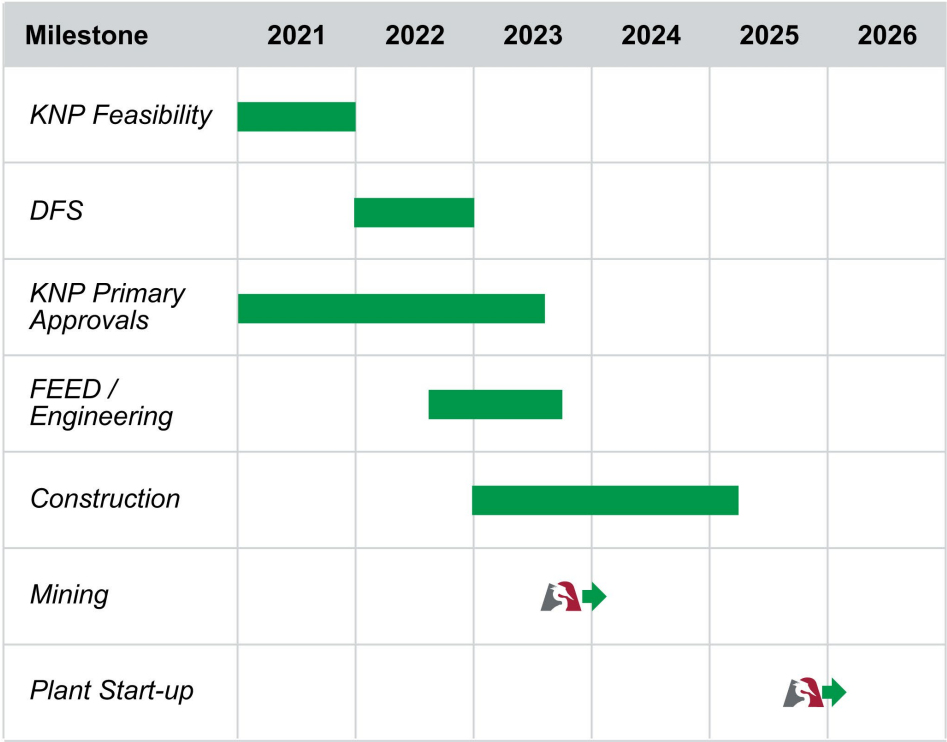
Where we are at:

- ✓ Industry leading HPAL and AL practitioner, Mike Miller (previously technical management at the operating Ravensthorpe HPAL operation) leading KNP DFS
- ✓ GAS by international metallurgical consultant, Wood Engineers, on Ardea's Goongarrie Hub nickel-cobalt project completed and supports Ardea's increased project scale of 3.5Mtpa for the DFS.
- ✓ Feed grade is 1% Ni and 0.07% Co, reflecting the 0.8% Ni cut-off resource*.
- ✓ Testwork commenced at ALS metallurgical laboratory to confirm flow-sheet.
- ✓ Independent logistics study confirms autoclave transport route through the Port of Esperance and via road to the Goongarrie plant site.
- ✓ Two groundwater extraction licences have been applied for with DWER to secure this water from tenements already held by Ardea, near the planned Goongarrie Hub processing plant.
- ✓ Accelerated engagement with key stake holders, such as the City of Kalgoorlie-Boulder and Southern Ports Esperance.

Indicative Pathway to Production



*ASX release 16 June 2021

Strong ESG – Environment, Social and Governance

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Environmentally Responsible

- Project designs and work practices based on ensuring the Company minimises green-house gas emission to ensure responsible sourcing of nickel and Critical Mineral supply
- A low carbon future is possible through proven KNP HPAL and AL flowsheet
- Waste landforms will benefit from regeneration agroforestry at KNP
- Semi-arid environment, and historic mining jurisdiction conducive to best practice safe tailings management

Socially Minded

- Strong support from the communities in which we operate and maintains a local office
- Native Title Agreement in place for development of the KNP
- Ardea has initiated an education fund to assist children in the Eastern Goldfields of WA
- The Ardea team comprises over 31% female participation, all in key management roles
- Ardea advocates fair representation for all community groups

Strong Governance

- Values are based on integrity, empathy, inclusion and teamwork
- Employer of choice
- Environmental Social and Governance (ESG) considerations are at the forefront of the way in which Ardea does business
- Ardea's Board continue to strengthen and document policies to underline ESG
- ESG compliance inherent in flowsheet and project development

Investment Summary

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Ardea's **KNP** offers **unrivalled nickel and cobalt scale optionality** (**5.9Mt of nickel and 384kt of cobalt***)

Globally significant nickel-cobalt-scandium resource in an **infrastructure-rich and stable jurisdiction** allows **sustainable** and **ethical** mineral supply

100% off-take available, 100% project ownership

Highly prospective landholding in the **Eastern Goldfields** of **Western Australia (WA), as confirmed by Emu Lake discovery**

WA-based Team with **track record** of exploration, development and production **success.**

Significant discovery at Emu Lake is an emerging Nickel Sulphide Camp

Well-funded to maintain momentum - upcoming news flow: feasibility study, hydrogeology and metallurgy updates; and nickel sulphide and Critical Mineral exploration

There is

5.9Mt

contained Nickel in the KNP*

This is enough for 147,000,000 Electric Vehicles

* Based on 40kg of nickel per NCM811 EV battery. See Appendix for resource breakdown and ASX release 16 June 2021.

For further information

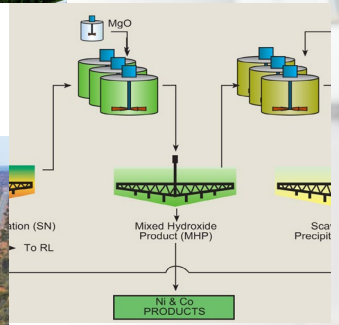
Andrew Penkethman,

Managing Director & CEO

+61 8 6244 5136

ardea@ardearesources.com.au

ardearesources.com.au



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A globally significant source of nickel-cobalt and scandium in Western Australia

For further information regarding Ardea, please visit www.ardearesources.com.au

APPENDICES

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Ardea Resources Corporate Overview

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Board and Key Personnel

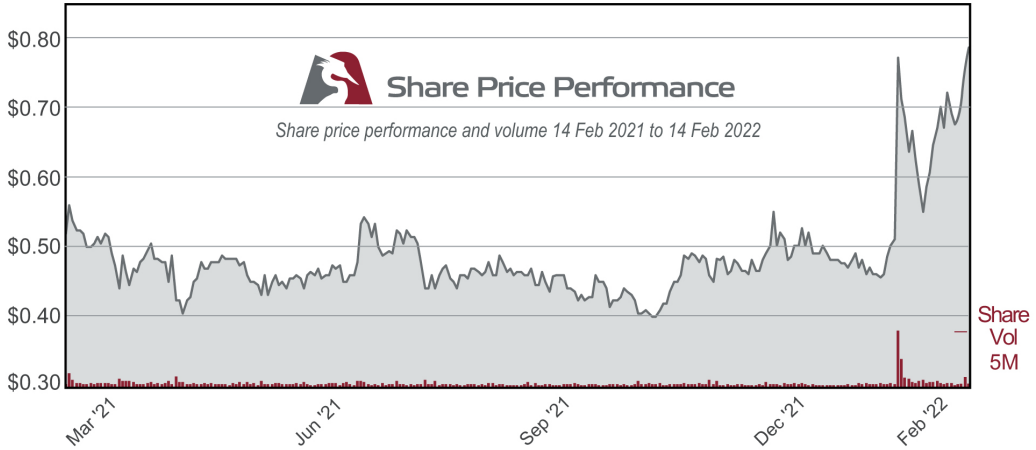
Mathew Longworth	Non-Executive Chair
Andrew Penkethman	Managing Director & CEO
Ian Buchhorn	Executive Director
Sam Middlemas	Company Secretary & CFO
Alex Mukherji	Manager Land Access & Compliance
Mike Miller	General Manager – Technical Services

Listed on ASX (ARL)

Shares on Issue	138,830,219
Performance Rights	4,771,000
Options	4,000,000
Share Price (14 Feb 2022)	$0.78
52 week high / low	$0.83 / $0.40
Cash (as at 31 Dec 2021)	$6.2 million
Market Capitalisation	$108 million
Board and Management	~11% equity
Top 40 Shareholders	~60% equity

Kalgoorlie Nickel Project – Goongarrie Hub

- ✓ Globally significant Nickel, Cobalt and Scandium resource and other Critical Minerals
- ✓ Development of KNP Laterites necessary to fill the gap in Ni supply to meet rising demand
- ✓ Critical Minerals essential for green and sustainable technologies
- ✓ Located in Australia's premier mining jurisdiction, Kalgoorlie-Boulder, WA



Experienced team working with quality partners

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Board and Key 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 25 years' experience, including project evaluation, exploration, discovery, resource development, feasibility study management, permitting, stake holder engagement, mine development and operations management. Extensive ASX, TSX and AIM market 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 & CFO

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

Alex Mukherji Manager Land Access & Compliance

Extensive geological and environmental compliance reporting. Drafting and negotiating access and commercial agreements. Assessing business development opportunities. Corporate representation with stake holders, including State and Commonwealth agencies.

Mike Miller General Manager - 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.

Nickel and the Inevitable Rise in Demand

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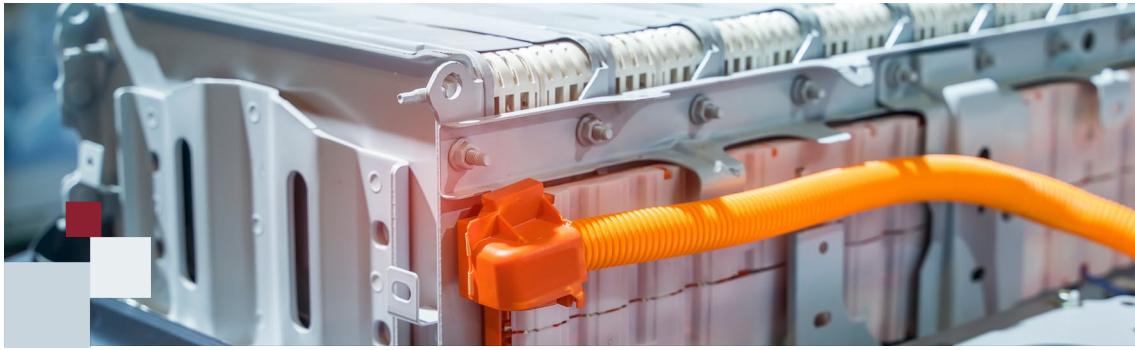
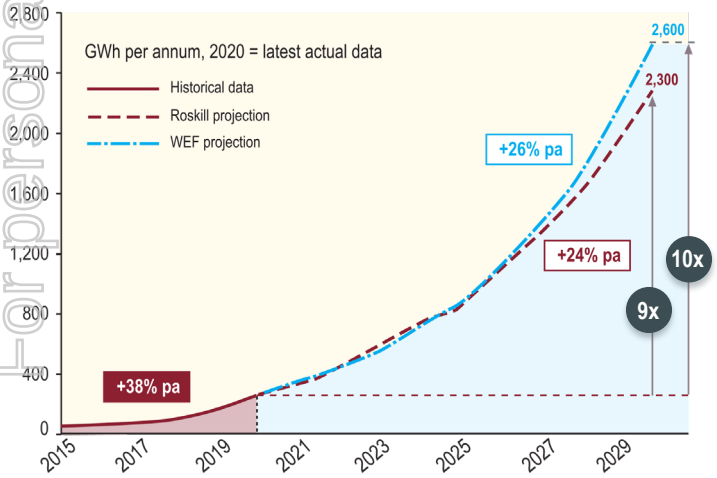
- ✓ Demand for batteries is forecast to accelerate over the next decade as energy storage becomes critical to the transformation of energy systems
- ✓ KNP poised to supply nickel and cobalt to meet the inevitable and growing rise in demand
- ✓ A KNP is required every 12 months from 2040 onwards!



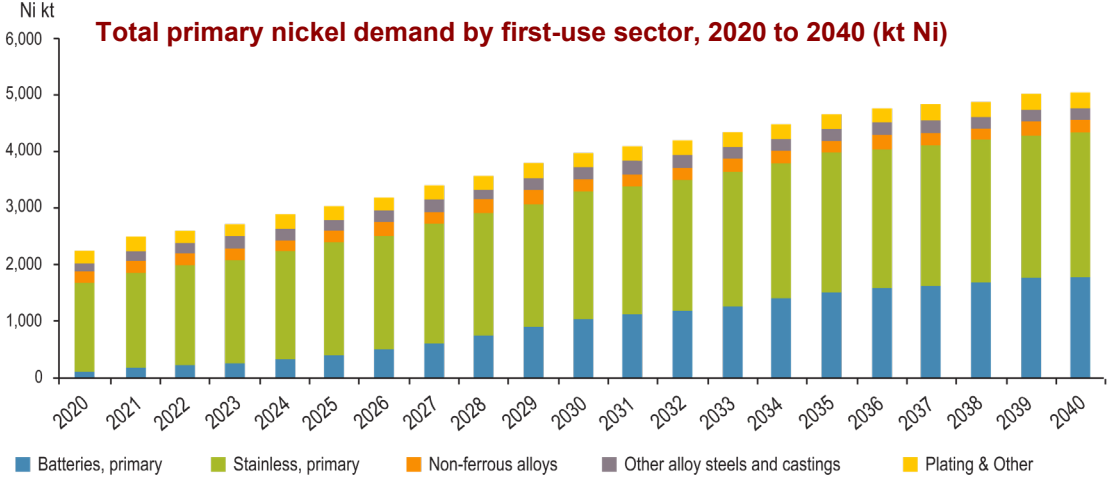
Global battery demand projected to 2030 (GWh pa)



Source: Accenture report commissioned by the Future Battery Industries CRC, 2021

Notes: IRENA's high scenario forecast used for ESS in Roskill projection. Growth rates in exhibit are compounding annual growth rates.
Source: World Economic Forum (2019) A vision for a Sustainable Battery Value Chain in 2030; Roskill (2020) Lithium-ion Batteries: Outlook to 2029, 4th Edition; International Renewable Energy Agency (2017) Electricity storage and renewables: Costs and markets to 2030; International Energy Agency (2021) Global EV Data Explorer; Jager-Waldau (2019)Snapshot of Photovoltaics-February 2019; Accenture analysis.

Total primary nickel demand by first-use sector, 2020 to 2040 (kt Ni)



Source: Roskill, 2020

KNP Superior HPAL Intensity

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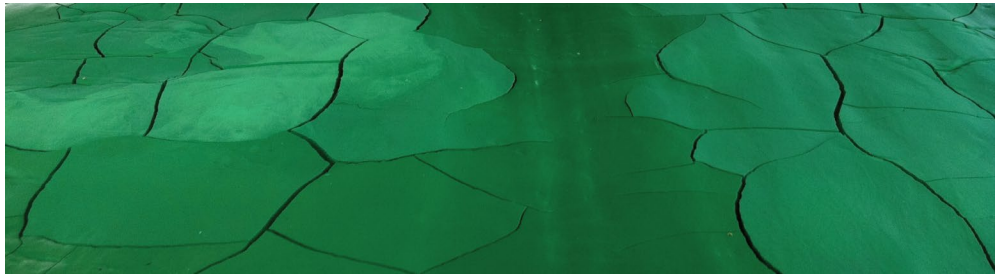
- ✓ Good ore grade + good slurry density = Lower Capex & Opex $$
- ✓ Atmospheric leach = stable operation, utilizes saprolite resource
- ✓ MHP Product = known technology & good market acceptance



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

A High-Quality Nickel and Cobalt Project

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Outstanding results delivered from 2018 PFS* and Expansion Studies:

	1.0Mtpa	1.5Mtpa	2.25Mtpa
Status	PFS	PFS	**ES**
No. Trains	1	1	**1**
Pre Tax NPV_8	US$ 1.13 billion	US$ 1.52 billion	**US$ 2.4 billion**
Pre Tax IRR	29 %	29 %	**31%**
CAPEX	US$ 472 million	US$ 588 million	**US$918 million**
C1 cash cost	US$ 0.42 / lb	US$ 0.45 / lb	**US$ (0.34) / lb**
Payback	5.3 years	5.6 years	**5.1 years**
Cobalt sulphate	5,500tpa	6,900tpa	**10,000tpa**
Nickel sulphate	41,500tpa	55,300tpa	**81,000tpa**

- ✓ PFS of 1Mtpa and 1.5Mtpa base case over a 25-year mine life completed
- ✓ Expansion study of 2.25Mtpa with a 25-year mine life completed
- ✓ 94.5% nickel and 95.5% cobalt recovery – life of mine
- ✓ Pre-cobalt credit C1 costs in line with current worldwide operators
- ✓ High Pressure Acid Leach (HPAL) 5th generation plant is a proven design, successfully operated in other laterite projects globally
- ✓ 2.25Mtpa case based on only 26% of Goongarrie Resource (now 3.5Mtpa, financial modelling current)
- ✓ Scandium by-product credit not factored in, so offers additional up-side

The information shown on this slide has been previously released on the ASX platform by Ardea in ASX releases, *Goongarrie Nickel Cobalt Project, PFS study, 28 March 2018 & +Goongarrie Expansion Study, 24 July 2018. All the material assumptions underpinning the forecast financial information derived from a production target, in the initial public report referred to in rule 5.17 continue to apply and have not materially changed.

KNP Resource Breakdown

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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.

Goongarrie Hub Mineral Resources using a 0.8% Ni cut-off grade

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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.

Goongarrie Deposits Mineral Resources including Sc, using a 0.5% Ni cut-off grade

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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.

Why Nickel Laterites now?

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Increase in nickel demand

- **The battery revolution forecasts a 10x increase in nickel demand by 2030**
- Traditional nickel uses such as stainless steel also continue to grow strongly
- With 40kg Ni typically required for a NCM811 EV battery, this translates to a significant increase in the demand for ethical and sustainable nickel supply

Nickel supply concerns

- Limited Nickel Sulphide (NiS) discoveries and long lead times to production leave a significant gap in supply
- Most NiS is sourced from deep underground mines
- Many new supplies of nickel are located in countries with a poor ESG record and high political risk
- **The market demands sustainable and ethical supply of nickel**

Nickel Laterite to fill the gap

- **Ni Laterite resources need to be developed to meet the gap in demand** which cannot be met by NiS
- Optimisation of Ardea's KNP flowsheet using proven technology, combined with Australia's low political risk, high technical experience and strong ESG framework, demonstrate that the KNP is a compelling source of future nickel supply