

Benchmark World Digital Tour Presentation

ASX & Media Release

26 May 2020

ASX Symbol

ARL

Ardea Resources Limited

Suite 2 / 45 Ord St
West Perth WA 6005

PO Box 1433
West Perth WA 6872

Telephone

+61 8 6244 5136

Email

ardea@ardearesources.com.au

Website

www.ardearesources.com.au

Directors

Katina Law
Non-Executive Chair

Andrew Penkethman
Managing Director & CEO

Ian Buchhorn
Technical Executive Director

Wayne Bramwell
Non-Executive Director

Executive Management

Sam Middlemas
Company Secretary & CFO

Matt Painter
General Manager Exploration

Issued Capital

Fully Paid Ordinary Shares
117,300,435

Directors/Employee
Performance Rights
4,476,000

ABN 30 614 289 342

Ardea Resources Limited (ASX: ARL, Ardea or the Company) is pleased to announce its participation in the Benchmark World Digital Tour (World Tour East) Webinar to be held on Tuesday 26 May 2020 from 5.00pm AEST / 3:00pm AWST.

Managing Director and Chief Executive Officer Andrew Penkethman will provide an update on the company's significant developments underway within the Kalgoorlie Nickel Project and its flagship Goongarrie Nickel Cobalt Project, 70 kilometres north of the City of Kalgoorlie-Boulder in Western Australia.

The Free webinar can be viewed live via Zoom over the internet and is designed to provide the highest quality information on the lithium ion battery, electric vehicle and energy storage supply chains and company profiles within a two-hour time slot.

It will also include an audience Q&A opportunity with all speakers.

Andrew Penkethman's speaking time will be at 3:40pm (AWST) (5:40pm AEST) with a 15-minute presentation, followed by a short Q&A session.

To access further details on the event and to register, please copy and paste the following link into your internet browser:

https://us02web.zoom.us/webinar/register/WN_k-Lr7oEqRUiKQ5w1sCNcZw

A copy of the investor presentation to be delivered during the webinar is attached.

Authorised for lodgement by the Board of Ardea Resources Limited.

**For further information regarding Ardea, please visit
www.ardearesources.com.au or contact:**

Ardea Resources:

Andrew Penkethman

**Managing Director and Chief Executive Officer,
Ardea Resources Limited**

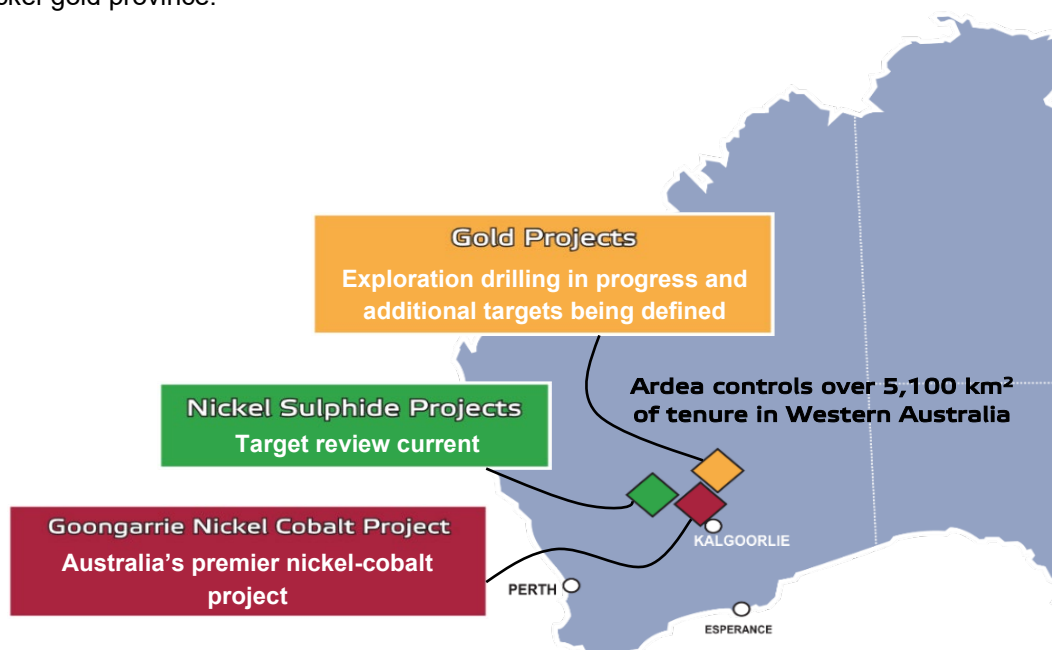
Tel +61 8 6244 5136

Email: ardea@ardearesources.com.au

About Ardea Resources

Ardea Resources (ASX:ARL) is an ASX-listed resources company, with a large portfolio of 100% controlled West Australian-based projects, focussed on:

- Development of the Goongarrie Nickel Cobalt Project, which is part of the Kalgoorlie Nickel Project, a globally significant series of nickel-cobalt deposits which host the largest nickel-cobalt resource in the developed world, coincidentally located as a cover sequence overlying fertile orogenic gold targets; and
- Advanced-stage exploration at WA nickel sulphide and gold targets within the Eastern Goldfields world-class nickel-gold province.



Follow Ardea on social media





Ardea Resources Limited

DEVELOPING

the Kalgoorlie Nickel Project
starting with Goongarrie Nickel-Cobalt

EXPLORING

for Nickel Sulphides and Gold
within the Kalgoorlie Nickel Project

**Benchmark Mineral Intelligence,
World Tour East
26 May 2020**

Presented by Andrew Penkethman



The faceted multi-coloured jewels represent the rich heart of WA and its diverse character in terms of landscape, minerals, and where Ardea projects are focused

Disclaimer



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), Drilling at Gale identifies large scale gold system (11 April 2019), Ardea Quarterly Operations Report, for the quarter ended 31 March 2019 (30 April 2019), Ardea Quarterly Operations Report, for the quarter ended 30 June 2019 (22 July 2019), Nickel sulphide exploration commences at Perrinvale Project (24 July 2019), Ardea Annual Report 2019 (24 October 2019), Ardea Quarterly Operations Report, for the quarter ended 30 September 2019 (31 October 2019), Godolphin Resources IPO to close early (19 November 2019), Mulga Plum Exploration Update (25 November 2019), Ardea Quarterly Operations Report, for the quarter ended 31 December 2019 (17 January 2020) and Ardea Quarterly Operations Report, for the quarter ended 31 March 2020 (9 April 2020).

This presentation is not an invitation, offer or recommendation (express or implied) to subscribe for, or apply for the purchase of, or to take any other action in respect of securities of any entity described herein and is not a prospectus, product disclosure statement or disclosure document for the purposes of the Corporations Act 2001 (Cth) and has not been lodged with ASIC. None of Ardea Resources Limited (Ardea or the Company) or its representatives are providing or offering investment advice or services by making this presentation.

Neither Ardea nor its representatives make any representation, warranty or guarantee of any kind, express or implied, as to the accuracy, completeness or reasonableness of the information contained herein or any other written or oral communication transmitted or made available to any person receiving this presentation. To the maximum extent permitted by law, Ardea and representatives expressly disclaim any and all liability based on or arising from, in whole or in part, such information, or any errors or omissions.

This presentation contains forward-looking statements regarding the Company's resources, intentions and future business. These statements reflect current information, expectations, intentions and strategies regarding the future, and are subject to certain risks and uncertainties. Should one or more of these risks or uncertainties materialise, or should any of the underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this presentation. Investors are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date they are made. Other than where required by law, the Company is under no obligation to revise any forward looking statement to reflect events or circumstances after the date of this presentation or to reflect the occurrence of unanticipated events.

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.





Ardea is a well funded Western Australian-focused developer and explorer with a clear strategy to become an integrated feedstock supplier to the Lithium Ion Battery sector



The Kalgoorlie Nickel Project (KNP) is the Developed World's premier nickel-cobalt project with 773 million tonnes at 0.7% nickel and 0.05% cobalt (5.6Mt Ni, 0.4Mt Co)¹

- **Globally significant mineral resource** on granted **mining leases** adjoining infrastructure
- Pre-Feasibility Study completed in 2018 on Goongarrie Nickel Cobalt Project (GNCP) within the larger KNP, **Pre Tax NPV₈ US\$2.4 billion²**
- Leverage off Western Australia's **world class safety, environmental and operating standards** to ensure **ethical mineral sources** to supply transition to global electrification
- Strategic Partner sought, up to 100% off-take is available, subject to financing support from Strategic Partner
- Able to supply increasing nickel and cobalt demand from the rapidly growing Electric Vehicle and Static Storage Battery markets



In addition to development studies, Ardea has a highly prospective, extensive (>5,100km²) exploration landholding in the Eastern Goldfields of WA with active exploration programs for **nickel sulphide and gold deposits**

1. See Appendix for resource breakdown and PFS outcomes (at February 2018 metal prices).

2. Per Goongarrie Expansion Study ASX release, 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.



DEVELOPING

the Goongarrie
Nickel Cobalt Project

Ardea's flagship is Australia's premier Nickel-Cobalt Project

Ardea is poised for ethical supply of Critical Minerals for new electrification technologies

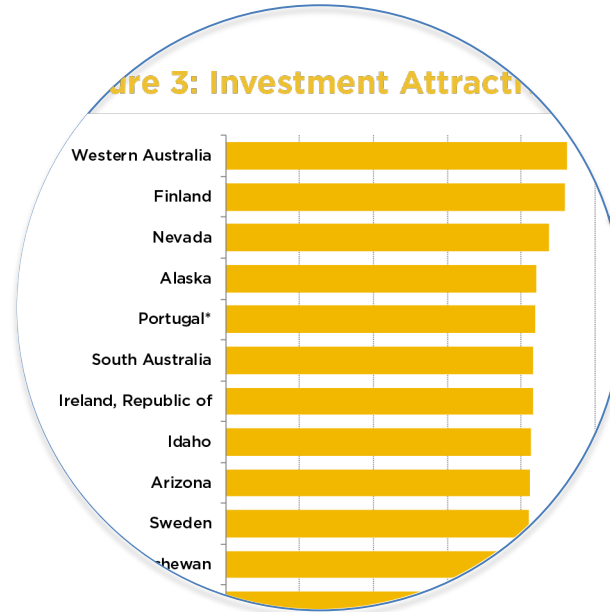


Western Australia – World Class for Mining



- ❑ Western Australia is top ranking in the Fraser Institute's Annual Survey of Mining Companies - Investment Attractiveness Index*

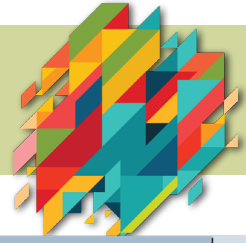
- ❑ No 1 Ranking is based on a composite of policy and best practice environment with world class regulatory environment, highly competitive taxation, no political risk or uncertainty and a fully stable mining regime. The index is also weighted by mineral potential.



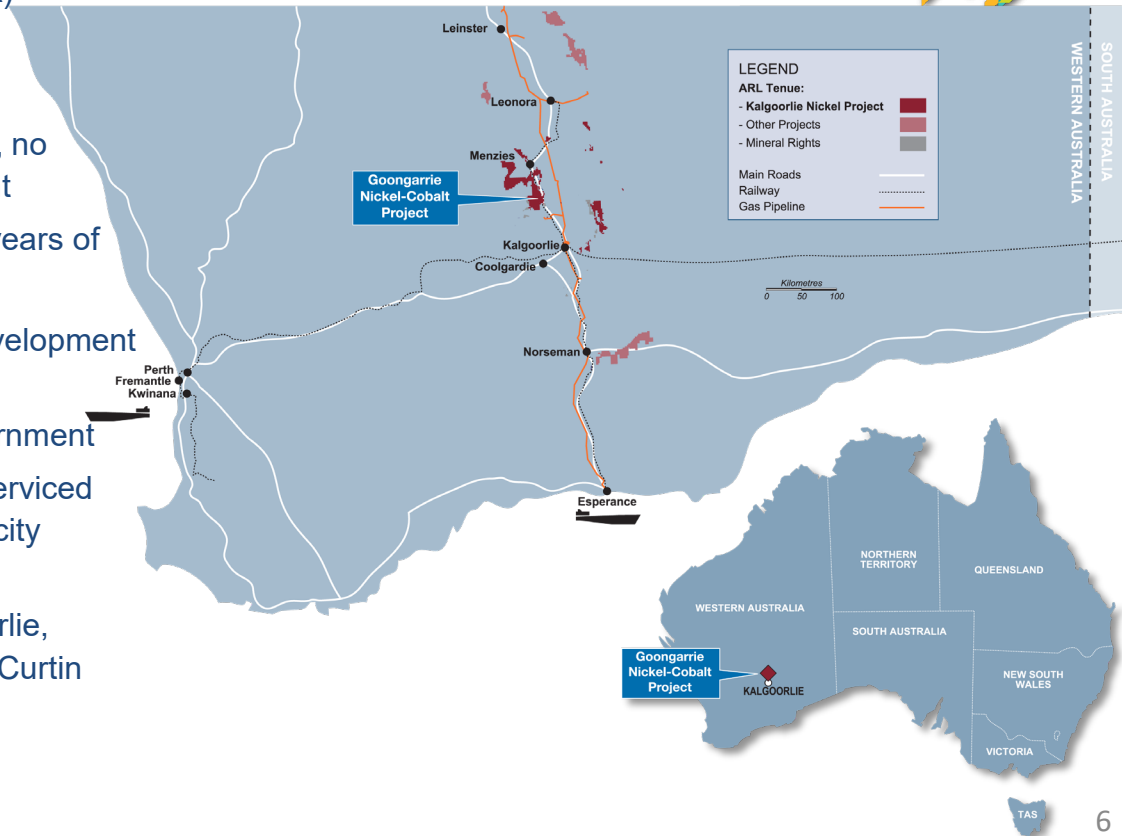
*The Fraser Institute is a Canadian Think Tank ranked in the top 15 World Wide - www.fraserinstitute.org/sites/default/files/annual-survey-of-mining-companies-2019.pdf



Optimum Jurisdiction



- ❑ All Ardea Projects located in Western Australia (WA)
- ❑ WA is the prime world destination for development of multi-decade minerals operations
 - Mining Act sole responsibility of State of WA, no parallel input from other levels of government
 - Certainty of title demonstrated through 130 years of WA sustained mineral production
- ❑ City of Kalgoorlie-Boulder is the prime resource development and operating destination within Australia
 - Very strong mining support from Local Government
 - Multitude of world-class mining operations serviced from the City, including the Super Pit on SE city boundary
 - Requisite service industries based in Kalgoorlie, including Tertiary education and research at Curtin University



Optimum Resource Scale



- ❑ Assumption is a world-leading Lithium Ion Battery (LIB) investor will require a minimum annual output of 40,000tpa nickel metal in product
- ❑ With 5.6Mt contained nickel*, easily accommodated within the KNP starting with the GNCP
 - >100 year potential supply of resource within KNP
 - Other undeveloped Australian nickel laterite projects unable to supply even 20 years at 40ktpa
- ❑ KNP well suited for NMC 811 LIB (Ni:Co = 8:1)
 - GNCP resource* grade 0.71% Ni and 0.06% Co (Ni:Co = 11.8:1)
 - Additionally ore has >0.5% Mn, no PFS input as yet on Mn recovery levels
 - Potential for producing Precursor Ni-Mn-Co for specific LIB OEM



* See Appendix for resource breakdown.

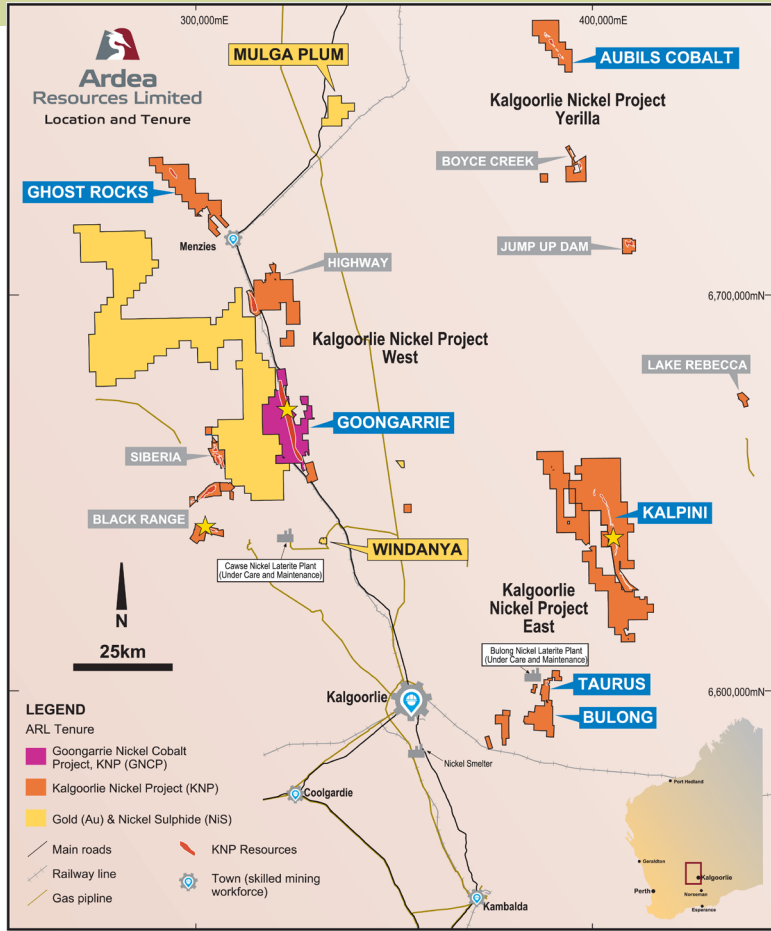
Optimum Environment for KNP



- ❑ Large contiguous KNP land holding allows unimpeded site planning to minimise ultimate site footprint
 - No conflict between production layout and infrastructure
 - Unlimited flexibility in scheduling production and back-fill of exhausted pits with tailings
- ❑ Temperate woodland
 - Waste landforms in KNP regenerates easily as open woodland
 - None of the challenges of mining in a tropical rain forest reserve
- ❑ Arid environment, facilitates well managed tailings disposal
 - Rehabilitation procedures well established over last four decades in Kalgoorlie open pit gold sector
 - No submarine tailings disposal
 - No valley-fill tailings dams
- ❑ No conflicting land use demands
 - KNP purely a mining jurisdiction
 - No competing food production activity (as in some other laterite districts)
- ❑ CO₂ minimisation
 - KNP PAL plant steam, heating and power generated through burning elemental sulphur for sulphuric acid feedstock
 - KNP PAL neutraliser includes Ni-enriched non-carbonate options
 - Waste landform regeneration facilitates significant agroforestry throughout the KNP



The Kalgoorlie Nickel Project



- ❑ **Kalgoorlie Nickel Project (KNP) has a globally significant nickel and cobalt resource 773Mt at 0.7% Ni and 0.05% Co***
 - 5.6 million tonnes contained Nickel
 - 405,000 tonnes contained Cobalt
- ❑ **The Goongarrie Nickel Cobalt Project (GNCP) is the western part of broader KNP, resource 216Mt at 0.71% Ni and 0.06% Co***
 - 1.5 million tonnes contained Nickel
 - 130,700 tonnes contained Cobalt
- ❑ **Potential to produce Nickel and Cobalt Sulphate or Mixed Sulphide or Hydroxide Product, or Precursor, as required by future development Strategic Partner**



Piloting studies have confirmed on-specification Ni & Co sulfate

1. * See Appendix for resource breakdown.
2. Per Goongarrie Expansion Study ASX release, 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.

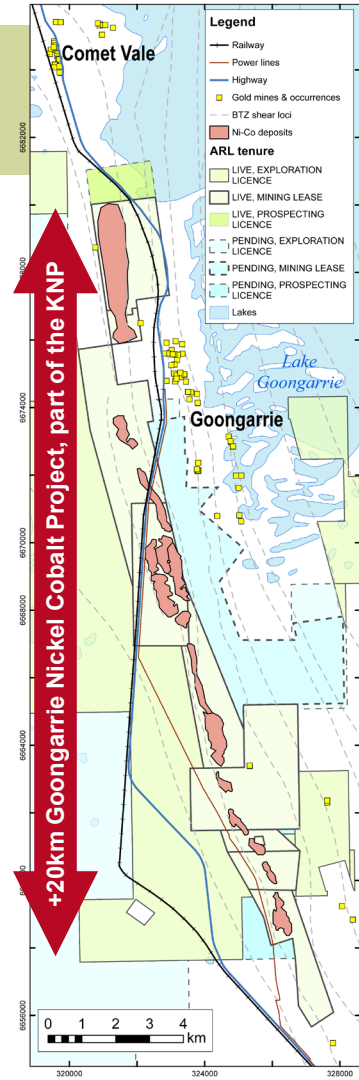


Goongarrie Nickel Cobalt Project

The GNCP is part of the largest Nickel Cobalt Resource in the developed world[^]

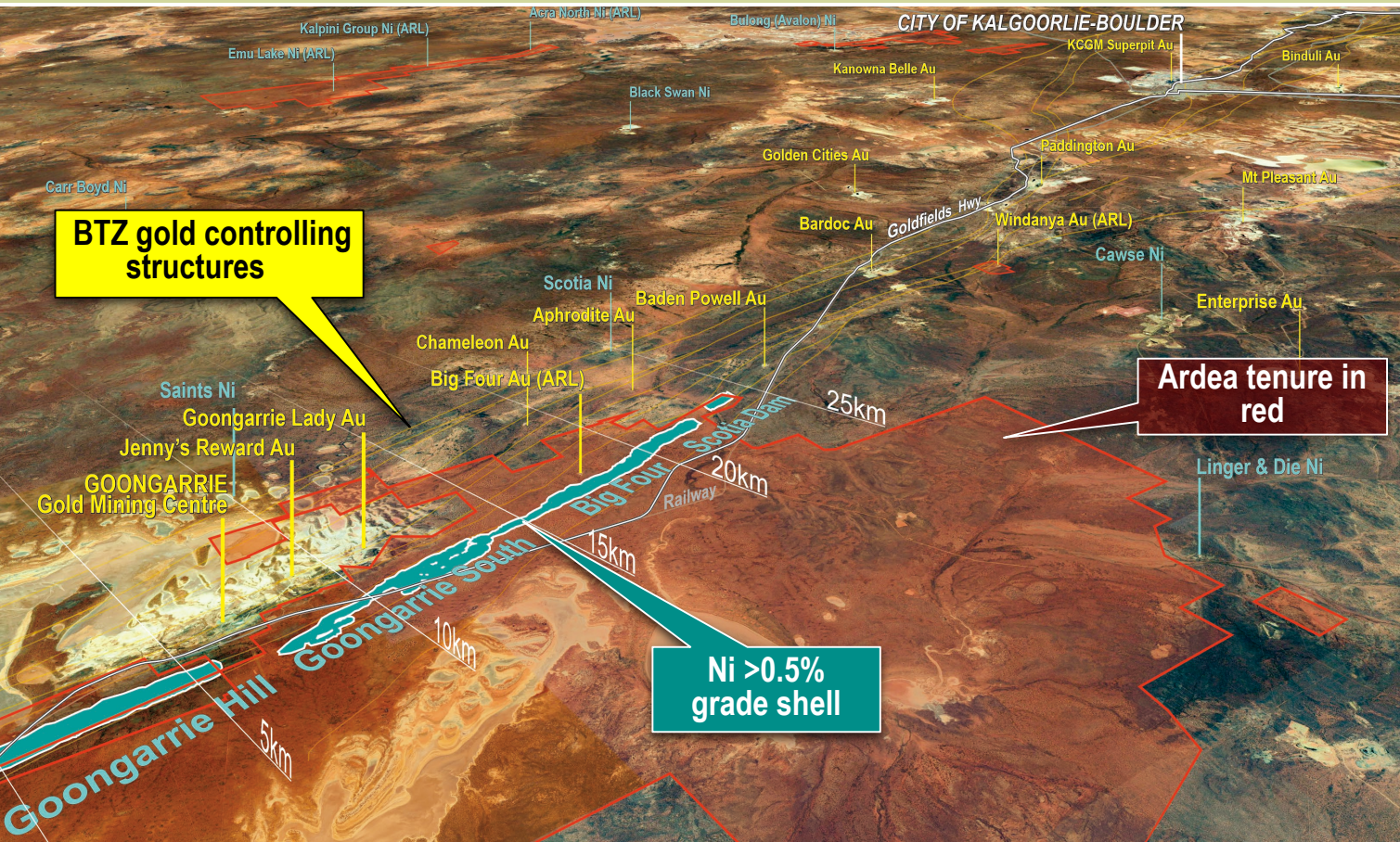
- Potential multi-decade producer of high-quality nickel and cobalt products
- 1.0Mtpa base case PFS – low CAPEX start-up with robust project economics*
- 2.25Mtpa Expansion Study – compelling project economics*
- Low technical risk project to provide nickel and cobalt for the growing battery market
- DFS programs underway - Feasibility work has extended into project expansion study “**WINNER**”, Water, In-pit Neutraliser and Nickel Enhanced Reserve. This initiative will leverage off Ardea’s extensive and flexible reserve and resource base within the KNP, additional to its flagship GNCP which is focused on premium goethite ore type
- Strategic partner process current through KPMG – Ardea won’t be rushed, Company has specific funding requirements to ensure the best outcome for Shareholders
- Strong participation interest as concerns rise around **secure, ethical, long-term supply of battery grade nickel and cobalt**

Refer to ASX releases: [^]Ardea Resources Annual Report 2017. *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.



Kalgoorlie Nickel Project – Ni, Co and Au

(looking south – with GNCP in the foreground. Note the scale and location)



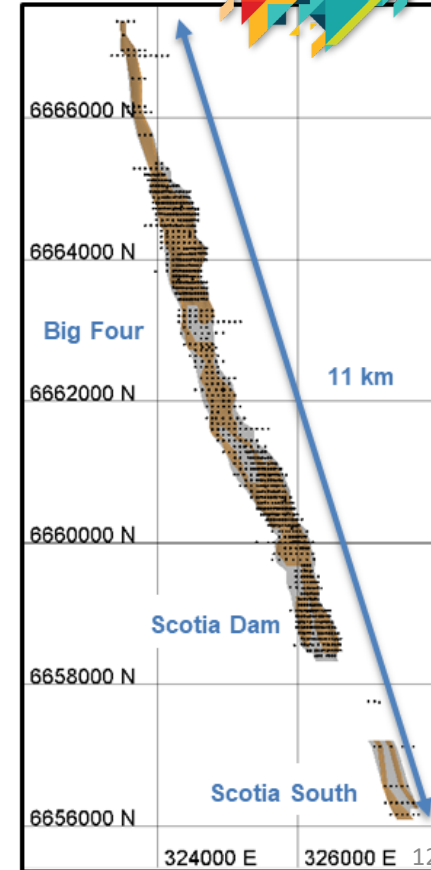
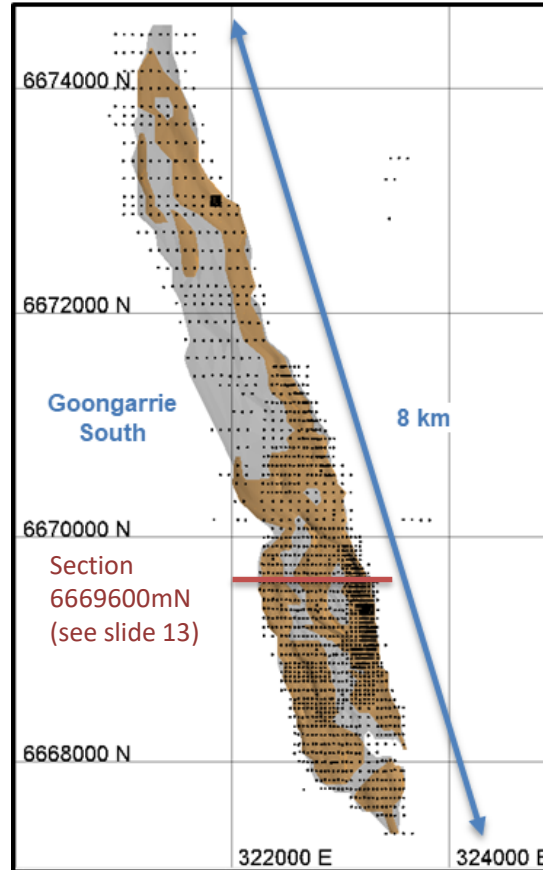
+20km
Goongarrie
Nickel Cobalt
Project,
western part
of the
Kalgoorlie
Nickel Project

GNCP Materials Status

- ❑ Block modelling & mine scheduling completed GS, BF & SD
 - **Grades >1.1% Ni & 0.1% Co during Payback Period**¹
 - Additional high grade mill feed confirmed at Goongarrie Hill, Highway and Siberia North (all within 30km of Goongarrie proposed plant site), maintains LOM GNCP leach feed grades >1% Ni (WINNER)¹
 - Resource modelling current on Goongarrie Hill, Highway and Siberia
 - PAL neutraliser to be recovered during open pit mining
 - Bench-scale neutralisation effective
 - Opex saving on neutraliser imports

1. Ardea ASX releases, Quarterly Operations Report, for the quarter ended 30 June 2019 (22 July 2019), Quarterly Operations Report, for the quarter ended 30 September 2019 (31 October 2019).

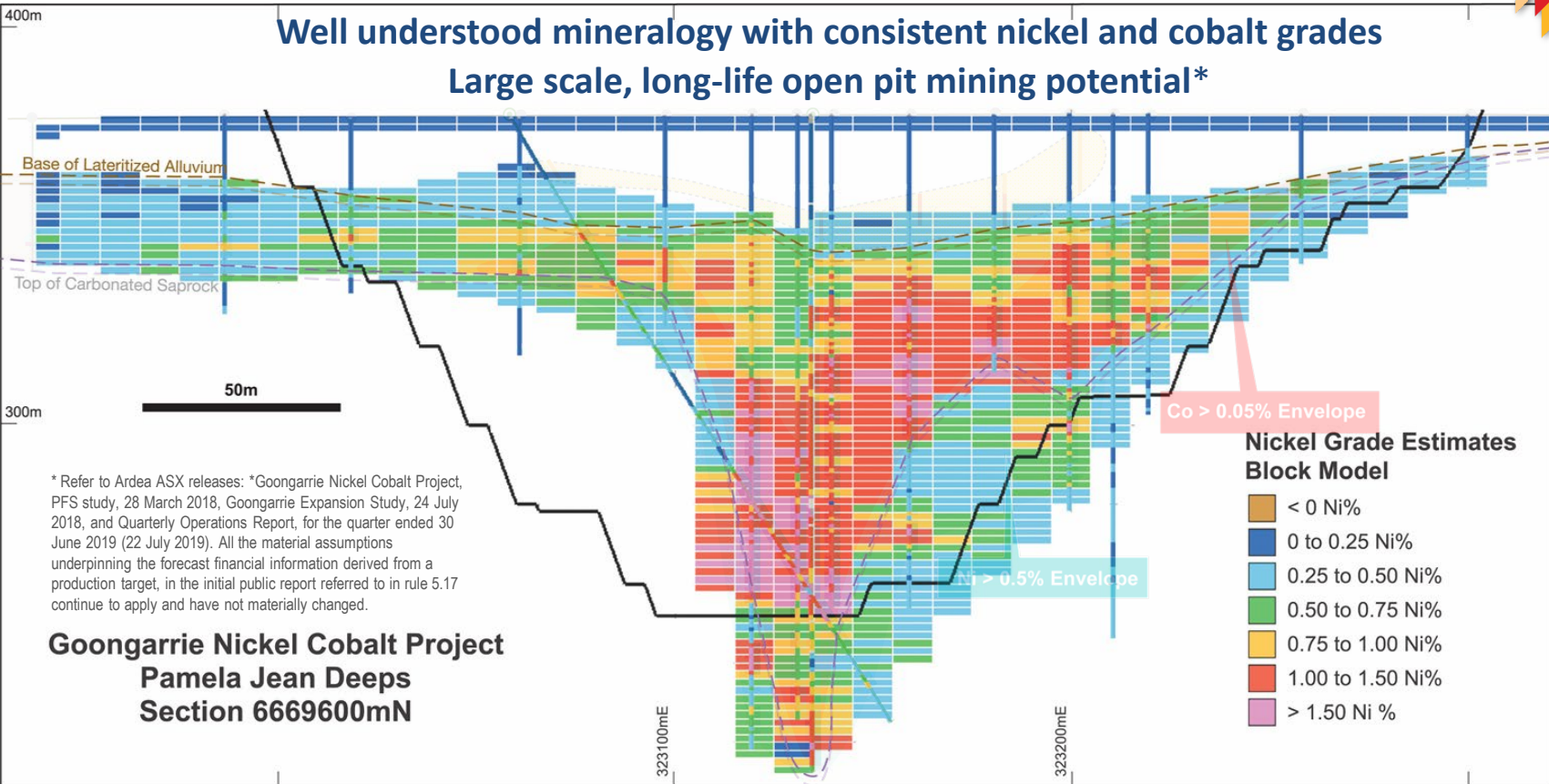
Goongarrie South, Big Four and Scotia Dam drillhole location plans overlaying modelled resource envelopes (Grey = 0.25% Ni cutoff, Brown = 0.05% Co cutoff). Projection GDA94 MGA94 Zone 51.



Thick, high-grade, single ore type, low strip ratio



Well understood mineralogy with consistent nickel and cobalt grades
Large scale, long-life open pit mining potential*



* Refer to Ardea ASX releases: *Goongarrie Nickel Cobalt Project, PFS study, 28 March 2018, Goongarrie Expansion Study, 24 July 2018, and Quarterly Operations Report, for the quarter ended 30 June 2019 (22 July 2019). 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.

Goongarrie Nickel Cobalt Project
Pamela Jean Deeps
Section 6669600mN

GNCP drill core showing goethite, which is the dominant host rock containing the nickel and cobalt mineralisation and also the premium plant feed for this style of mineralisation.

GNCP Material Source, Type and Quality



The high quality of Goongarrie ore is the key to project success:

- ❑ Controls on mineralisation are well understood by applying Ardea's quality geomet analysis
- ❑ Ardea piloting studies have confirmed on-specification nickel and cobalt sulphate
- ❑ Scandium and Rare Earth credit potential
- ❑ Ore mainly goethitic (>40% Fe & preferred plant feed)
- ❑ No smectite clays (unlike many other laterite deposits, so no "drying & aging" required before ore processed)
- ❑ Highly soluble in PAL, low acid consumption, excellent rheology, pulp density (expected lower Capex and Opex compared to peers)
- ❑ No screen upgrade required, eliminates ore preparation risk (commonly a stumbling block for historic WA non-goethitic deposits)

High-grade nickel & cobalt goethitic laterite mineralisation - part of continuous mineralisation from near surface to >100m depth



World-Class Mining Standards, Location & Infrastructure



- ❑ Kalgoorlie, Western Australia offers **world-class infrastructure in an established mining district**
 - Over 130 years of mining in the region
 - Lowest sovereign risk, very strong Local Government support
 - Goongarrie only 80 km north on the main Goldfields Highway
 - Railway line, power line, optic fibre cross Goongarrie tenements, mobile phone coverage
 - Gas pipeline adjacent to east
 - Rail access to ports of Kwinana and Esperance
- ❑ Western Australia's **safety, health and environmental standards are world's best practice**
- ❑ An **Australian source for battery metals** removes supply line concerns
- ❑ **Goongarrie offers an ethical, secure, long-life source of nickel and cobalt**



City of Kalgoorlie-Boulder – resources, mining and community linked - the contributions the WA resources sector makes to the local and national economies & quality of life are celebrated. Southern Ports - Esperance

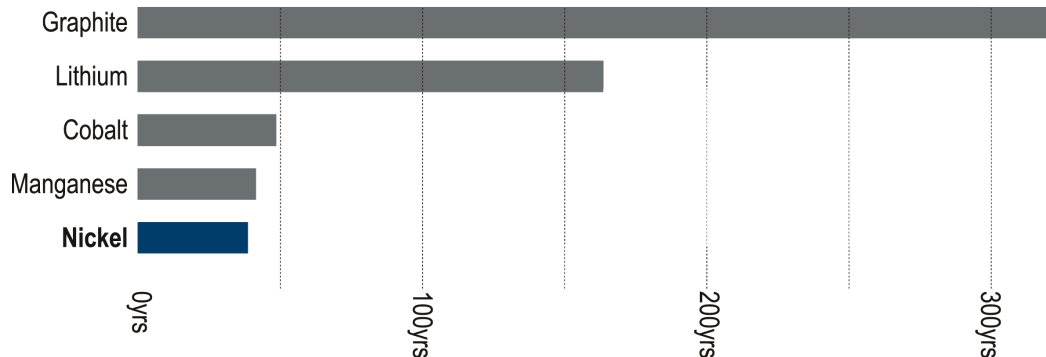
The Nickel Market – Reserve Life of Major Battery Minerals



Raw material growth rate 2020 vs 2030



Reserve life of major battery minerals (in years)



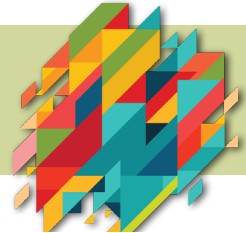
- ❑ High levels of most battery minerals but **not nickel**
- ❑ **Declining nickel reserves**
- ❑ **Future nickel production not expected to keep up with growing demand, driven mainly by the battery sector**
- ❑ **Not a matter of if, but when!**
- ❑ **Nickel supplies most critical of all battery minerals**
- ❑ Particularly in light of most recent 811 battery chemistry (8 parts Ni : 1 part Mn : 1 part Co)



Top Graph – After USGS and JF Bertincourt, Terra Studio, What is the investment thesis for Nickel presentation, June 2019.

Bottom Graph - © Benchmark Mineral Intelligence 2020

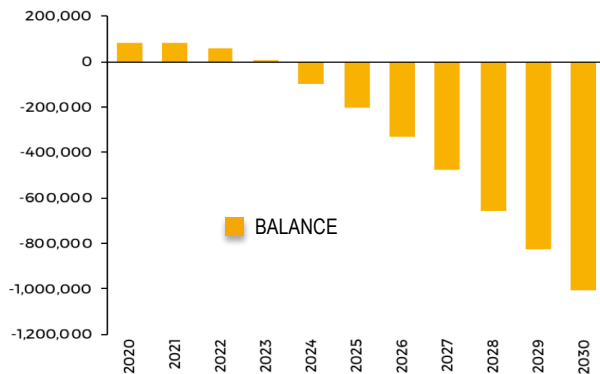
Projected Nickel Demand from Energy Revolution



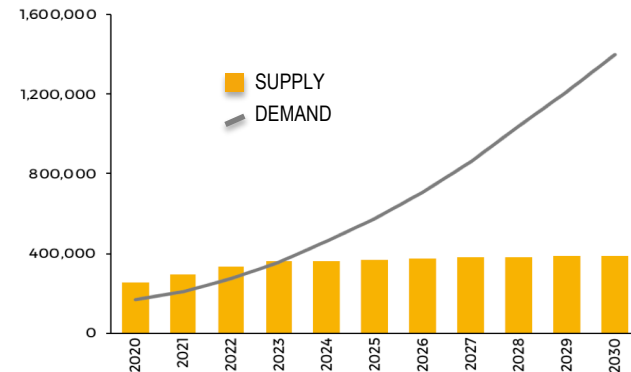
- ❑ Current nickel market size ~2.5 million tonnes pa
- ❑ Depending on the scenario for the EV/SSB rate of adoption, annual nickel volumes to meet additional demand vary between 750,000 tonnes and 2 million tonnes pa
- ❑ Benchmark Minerals forecasts 1.35M tonnes Ni used in batteries by 2030
- ❑ **Nickel demand from EV/SSB is expected to far exceed nickel production from existing operations in any scenario of EV/SSB adoption**
- ❑ Anecdotal - “Each and every known nickel deposit today must be commissioned into a mining operation if the World is to have EV/SSBs”

NICKEL SULPHATE MARKET BALANCE

Tonnes (contained nickel)



Tonnes (contained nickel)



* The short lead time to installing sulphate capacity means we expect this deficit to be addressed, given a sufficient incentive price



EV/SSB Evolution & Industry Wide Investment



- ❑ The number of lithium ion battery megafactories in the pipeline has reached 136 versus 63 at end of 2018*
- ❑ China is the global leader in the battery revolution and take up of new technology with the rest of the world playing catch up
- ❑ China is now home to 101 of 136 lithium ion battery megafactories in the pipeline to 2029*
- ❑ New Electric Vehicle (EV) companies rising to challenge existing EV and ICE manufacturers
- ❑ All auto manufacturers have EV plans in place
- ❑ Li-ion battery demand is forecast to increase more than twelve-fold by 2030^
- ❑ Battery manufacturers must secure ethical nickel and cobalt

* Benchmark Minerals' Lithium ion Battery Megafactory April 2020 Assessment. ^ Benchmark Mineral Intelligence forecast data Q1 2020.

Interest in Tesla Cybertruck goes wild with over 250,000 pre-orders



Interest in Elon Musk's radical and polarizing Cybertruck is going wild, with 250,000 pre-orders now taken for the all-electric utility truck since its launch last Friday.

On Monday, the Tesla CEO and co-founder announced that in the first two days, 146,000 orders had been taken, then 187,000 as of Monday morning (Australian time), then 200,000 that afternoon.

On Wednesday, Musk announced 250,000 pre-orders - which require a fully refundable deposit of just \$9,900 (a \$150 in Australia) had been taken.



Rivian

Ford's \$500M Rivian investment could begin with electric Lincoln SUV

Kia plans 11 EVs by 2025, headlined by 500km-range crossover

Mike Costello
COMPARISONS EDITOR

14

Korean company wants 500k EV sales per year by 2026, but Australia remains low on the global priority list



DW Made for minds.

TOP STORIES MEDIA CENTER TV RADIO LEARN GERMAN

GERMANY BREXIT WORLD BUSINESS SCIENCE ENVIRONMENT CULTURE SPORTS

TOP STORIES

NEWS

Volkswagen to spend €60 billion on switch to electric cars

The German car giant said it will invest even more money than previously planned into expanding its electric fleet. Over the next decade, VW plans to roll out 75 completely electric models and 60 hybrid vehicles.

25th Oct 2019

2 min read NEWS 10th Sep 2019

2 min read

Land Rover readying Range Rover EV

Volkswagen ID.3 unveiled: Up to 550km range, in Australia from 2022



William Stapford

1 3



Paul Maric

11 179

Investment Summary



KNP with “starter” GNCP offers unrivalled nickel and cobalt scale optionality, 5.6Mt of nickel and 405kt of cobalt held by a well-funded junior with \$9.2M cash to fund ongoing studies and market cap of only A\$36M



Globally significant mineral resource in an **infrastructure-rich and stable jurisdiction**, provides ability to increase production from multiple processing hubs for the rapidly expanding Critical Minerals/LIB sector



Strategic Partner sought, up to **100% off-take is available**, subject to financing support from Strategic Partner



Leveraged to increasing nickel and cobalt demand from the rapidly growing Electric Vehicle and Static Storage Battery markets



Project expansion study “WINNER”, Water, Inpit Neutraliser and Nickel Enhanced Reserve underway to leverage off Ardea’s extensive KNP resource base additional to its flagship GNCP



Ardea has a large (>5,100km²), **highly prospective landholding** in the Eastern Goldfields of WA with active exploration programs for nickel sulphides and gold



2020 news flow to include Strategic Partner initiatives, updated KNP & GNCP resource, nickel sulphide exploration and gold exploration



Ardea Resources Limited

DEVELOPING

the Kalgoorlie Nickel Project
starting with Goongarrie Nickel-Cobalt

EXPLORING

for Nickel Sulphides and Gold
within the Kalgoorlie Nickel Project

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

APPENDICES



The faceted multi-coloured jewels represent the rich heart of WA and its diverse character in terms of landscape, minerals, and where Ardea projects are focused

Corporate Snapshot



Board and Executive Management Team

Katina Law <i>Non-Executive Chair</i>	Actively involved in the mining industry for over 25 years in corporate and site based roles across several continents, including senior positions at Newmont Mining and LionOre. Non-Executive Chair of Yandal Resources Ltd.
Andrew Penkethman <i>Managing Director, Chief Executive Officer</i>	Resources sector executive with over 25 years' experience, including mine management, project evaluation, early stage & near mine exploration, resource development, feasibility study management, permitting, stake holder engagement & mine development across open pit and underground operations. ASX, TSX & AIM equity market experience.
Ian Buchhorn <i>Executive Director</i>	Mineral Economist and Geologist with over 35 years experience, operated as Registered Mine Manager in the Kalgoorlie Goldfields region.
Wayne Bramwell <i>Non-Executive Director</i>	Mining executive with over 26 years of international and Australian expertise across the base metals, precious metals and bulk commodity sectors.
Sam Middlemas <i>Company Secretary and Chief Financial Officer</i>	Chartered Accountant (CA) with more than 30 years experience providing financial and corporate secretarial services.
Dr Matt Painter <i>General Manager – Exploration</i>	Geologist with over 25 years professional experience including managerial, corporate, and on-ground experience across a broad range of commodities including nickel, cobalt, manganese, copper, gold and zinc-lead-silver.

Capital Structure, as at 25 May 2020

Shares on Issue	117,300,435
Share Price (25 May 2020)	\$0.31
52 week high / low	\$0.80 / \$0.17
Cash (as at 31 March 2020)	\$9.2 million
Market Capitalisation (25 May 2020)	\$36 million
Staff performance rights	4.476 million

Major Shareholders

Ian Buchhorn and associates	10.7%
Brian O'Shannassy and associates	7.9%
Citicorp Nominees	9.6%
Other Institutional holdings	6.5%
Top 20 shareholders	66%



Ardea has a quality Western Australian project portfolio and the team to make their projects succeed.

Kalgoorlie Nickel Project – Approvals Status



Goldfields Highway and power lines passing through the GNCP

Critical minerals are metals and non-metals that are considered vital for the economic well-being of the world's major and emerging economies, yet whose supply may be at risk due to geological scarcity, geopolitical issues, trade policy or other factors.¹



- ❑ Potential for **Critical Minerals** production from **multiple processing hubs** and **multi-decade mine life**, hubs concept engenders excellent resource utilisation and rehabilitation through scheduling optionality
- ❑ All project designs are focused on minimising footprint and operating to environmental best practice
- ❑ Previous studies include PFS by Vale 2009, Heron 2010, >A\$50M spent, >400,000m historic drilling
- ❑ Extensive existing infrastructure to help fast-track project development
- ❑ 100%-owned by Ardea, no encumbrances

1. From www.ga.gov.au/about/projects/critical-minerals

Kalgoorlie Nickel Project – Approvals Status



Status and progress towards Project Approvals

- ❑ Community consultation current with GNCP embraced
- ❑ All GNCP resources on granted mining leases with Regional Native Title agreement in place for continued grant of development tenure
- ❑ Environmental Reports finalised and ready for statutory approvals submission when the decision is made
- ❑ Water sampling completed, focussed on pit-dewater process sources suitable for Reverse Osmosis feedstock
 - Bench-scale nano-filtration applicable for water softening

Activities undertaken to minimise project footprint

- ❑ Consolidate site infrastructure location
- ❑ Maximise use of existing infrastructure
- ❑ Back filling of open pits with slurry tailings, top soil & then revegetate
- ❑ Extensive Flora and Fauna surveys undertaken across the project area

Development on track with all resources on granted mining leases and strong stakeholder support



A High Quality Nickel and Cobalt Project



Outstanding results delivered from PFS* and Expansion Studies completed in 2018:

	1.0Mtpa	1.5Mtpa	2.25Mtpa
<i>Status</i>	PFS	PFS	ES
<i>No. Trains</i>	1	1	1
<i>Pre Tax NPV₈</i>	US\$ 1.13 billion	US\$ 1.52 billion	US\$ 2.4 billion
<i>Pre Tax IRR</i>	29 %	29 %	31%
<i>CAPEX</i>	US\$ 472 million	US\$ 588 million	US\$918 million
<i>C1 cash cost</i>	US\$ 0.42 / lb	US\$ 0.45 / lb	US\$ (0.34) / lb
<i>Payback</i>	5.3 years	5.6 years	5.1 years
<i>Cobalt sulphate</i>	5,500tpa	6,900tpa	10,000tpa
<i>Nickel sulphate</i>	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
- ✓ Pressure Acid Leach (PAL) 5th generation plant is a proven design, successfully operated in other laterite projects globally
- ✓ 2.25Mtpa case based on only 26% of Goongarrie Resource



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



KNP nickel-cobalt JORC Code (2012) Mineral Resource

Resource category	Size (Mt)	Nickel (%)	Cobalt (%)	Contained metal Ni (t)	Co (t)
Measured	9.6	1.02	0.10	98,800	9,700
Indicated	232.9	0.75	0.06	1,759,700	141,200
Inferred	530.5	0.68	0.05	3,600,000	254,400
TOTAL	773.0	0.70	0.05	5,458,400	405,400

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, Ardea Annual Report 2019, 24 October 2019.

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

The information in this report that relates to Mineral Resources for the Highway, Goongarrie Hill, Goongarrie South, Big Four, Aubils and Boyce Creek Prospects is based on information originally compiled in-house and validated by Steve Jones in 2013. Steve Jones is a member of the Australasian Institute of Mining and Metallurgy. Steve Jones is a full time employee of Heron Resources Limited and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the resource estimation activity that 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'. Steve Jones consents to the inclusion in this report of the matters based on his information in the form and context that it appears. Note that Mineral Resources that are not Ore Reserves do not have demonstrated viability.

The information in this report that relates to Mineral Resources for the Siberia North, Bulong East, Siberia, Black Range, Taurus and Jump Up Dam Prospects is based on information compiled by Snowden Mining Industry Consultants by members of the Australian Institute of Mining and Metallurgy. Snowden Mining Industry Consultants had sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the resource estimation activity. All resources were internally audited by Snowden and signed off by a person of sufficient experience 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'. Steve Jones has validated the original resource estimates during 2013. Steve Jones consents to the inclusion in this report of the matters based on his information in the form and context that it appears. Note that Mineral Resources that are not Ore Reserves do not have demonstrated viability.



Goongarrie Nickel Cobalt Project Resources



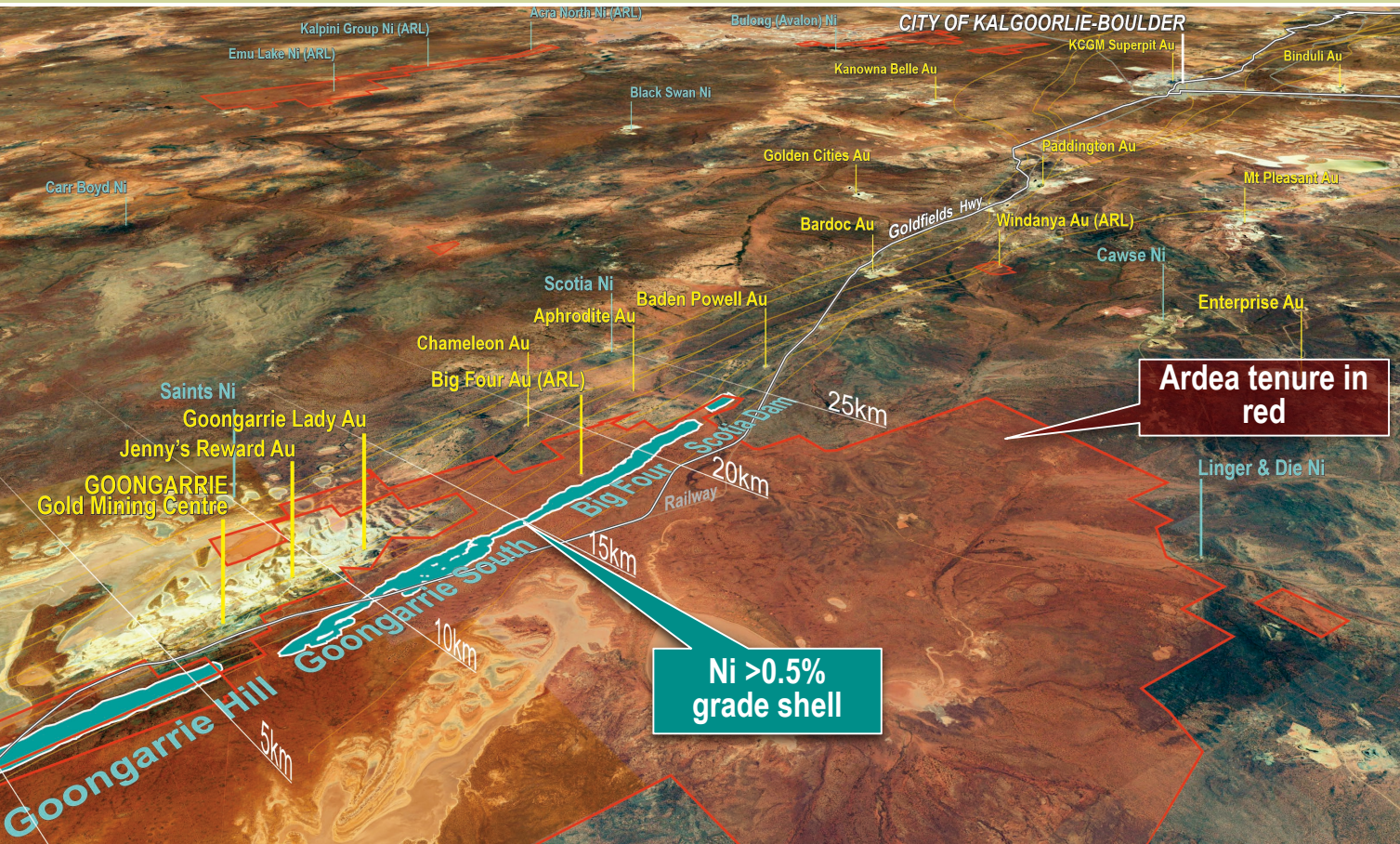
Summary of total mineral Nickel Cobalt Project area, comprising resources at Goongarrie Hill, Goongarrie South, resources within the Goongarrie Big Four, and Scotia Dam (ASX release 14 March 2018).

Camp	Domains	Cut-off %	Resource category	Size (Mt)	Nickel (%)	Cobalt (%)	Contained Ni (t)	metal Co (t)
Goongarrie Hill	Ni & Co	≥ 0.5% Ni or > 0.08% Co	Inferred	52.5	0.65	0.04	340,400	21,600
			Subtotal	52.5	0.65	0.04	340,400	21,600
Goongarrie South	Ni & Co	≥ 0.5%Ni or > 0.08% Co	Measured	10.3	0.98	0.10	101,200	10,200
			Indicated	56.2	0.72	0.07	407,000	37,200
			Inferred	32.2	0.69	0.06	221,200	20,300
			Subtotal	98.7	0.74	0.07	729,300	67,700
Big Four	Ni & Co	≥ 0.5%Ni or > 0.08% Co	Indicated	45.5	0.71	0.06	320,700	28,200
			Inferred	9.9	0.63	0.06	61,900	6,100
			Subtotal	55.4	0.69	0.06	382,700	34,300
Scotia Dam	Ni & Co	≥ 0.5% Ni or > 0.08% Co	Indicated	3.3	0.81	0.09	26,900	3,000
			Inferred	5.7	0.76	0.07	43,300	4,100
			Subtotal	9.0	0.78	0.08	70,200	7,100
Total	All	≥ 0.5% Ni or > 0.08% Co	Measured	10.3	0.98	0.10	101,200	10,200
			Indicated	105.0	0.72	0.07	754,600	68,400
			Inferred	100.3	0.67	0.05	666,900	52,100
Goongarrie Resource Global			TOTAL	215.6	0.71	0.06	1,522,700	130,700

Note: All nickel and cobalt domains are included and are encapsulated by an envelope defined by nickel grades equal to or greater than 0.5%.
Note figures are rounded to reflect degree of certainty and may not tally.



Our Flagship Goongarrie Nickel - Cobalt Project



Goongarrie JORC
Resource

**215.6 Mt at
0.71% nickel
and 0.06%
cobalt**

Reserves optimised for
25 year mine life only,
less than
20% of Goongarrie
resource utilised
at this scale
(40.1 Mt at 0.82% Nickel
& 0.09% Cobalt*)

Ardea tenure in
red

Ni > 0.5%
grade shell

Reserves Defined for Goongarrie Nickel Cobalt Project*



Goongarrie Nickel Cobalt Project, Ore Reserves based on 25 year mine life at 1.5 Mtpa.

Deposits	Class	Size (Mt)	Nickel (%)	Cobalt (%)
Goongarrie South	Proven	8.95	0.96%	0.10%
	Probable	17.26	0.79%	0.09%
	Total	26.22	0.85%	0.10%
Big Four	Proven	—	—	—
	Probable	13.92	0.77%	0.09%
	Total	13.92	0.77%	0.09%
TOTAL	Proven	8.95	0.96%	0.10%
	Probable	31.18	0.78%	0.09%
	Total	40.13	0.82%	0.09%

Using a nickel equivalent cut of >0.81%, which used inputs of A\$18,900/t nickel and A\$120,750/t cobalt. (US\$15,120/t Ni and US\$96,600/t Co, 0.8 exchange rate). Nickel equivalent (Nieq %) = .

Prices used are US\$15,120/t for nickel and US\$96,600/t for cobalt. No assumption about recovery is included here. Recoveries are addressed elsewhere throughout the mining schedule and financial model.

*The information shown on this slide has been previously released on the ASX platform by Ardea in ASX release, Goongarrie Nickel Cobalt Project, PFS study, 28 March 2018. The information in this report that relates to Ore Reserves for the Goongarrie South and Big deposits of the Goongarrie Nickel Cobalt Project is based on information compiled by Mr Steve Lampron who is a Member of the Australasian Institute of Mining and Metallurgy and who has provided expert guidance on mine planning and Ore Reserve estimation. Mr Lampron is a director of Auralia Mining Consulting 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 Lampron consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.



Resource Comparison



	RESOURCES - AUSTRALIAN BULK TONNAGE NICKEL					
Ardea ¹	Kalgoorlie Nickel Project, WA			Nickel Laterite		
Classification	Mt	% Ni	% Co	ppm Sc	tonne Ni	tonne Co
Measured	9.6	1.03	0.10	not quoted	98,800	9,700
Indicated	232.9	0.76	0.06	not quoted	1,759,600	141,200
Inferred	530.5	0.68	0.05	not quoted	3,600,000	254,400
Total	773.0	0.71	0.05	not quoted	5,458,400	405,400
Glencore ²	Murrin Murrin Operation, WA			Nickel Laterite		
Measured	144.5	1.01	0.07	not quoted	1,459,450	105,485
Indicated	75.5	0.99	0.08	not quoted	747,450	63,420
Inferred	17.0	0.90	0.07	not quoted	153,000	11,900
Total	237.0	1.00	0.08	not quoted	2,359,900	180,805
BHP ³	Nickel West Operation, WA			Nickel Sulphide		
Measured	327.1	0.70	not quoted	not quoted	2,278,040	
Indicated	280.2	0.66	not quoted	not quoted	1,843,450	
Inferred	324.8	0.68	not quoted	not quoted	2,213,720	
Total	932.1	0.68	not quoted	not quoted	6,335,210	
Clean TeQ ⁴	Sunrise Project, NSW			Nickel Laterite		
Measured	40	0.75	0.15	not quoted	299,000	59,000
Indicated	47	0.55	0.12	not quoted	259,000	58,000
Inferred	14	0.24	0.11	not quoted	35,000	16,000
Total	101	0.59	0.13	not quoted	593,000	133,000
Australian Mines ⁵	Sconi Project, Qld			Nickel Laterite		
Measured	19.7	0.80	0.07	not quoted	157,981	13,425
Indicated	73.8	0.62	0.06	not quoted	456,632	47,326
Inferred	22.3	0.54	0.05	not quoted	121,320	10,476
Total	115.8	0.64	0.06	not quoted	735,933	71,227

Data Sources

1. Ardea 2019 Annual Report to 30 June 2019.
2. Glencore Annual Report 2019, page 246, Resource Statement 31 December 2019.
3. BHP Limited, 2019 Annual Report to 30 June 2019, page 288.
4. NI 43-101 Technical Report, 25 June 2018.
5. Australian Mines Quarterly Report March 2020, ASX Announcement 18 May 2020.



Reserve Comparison

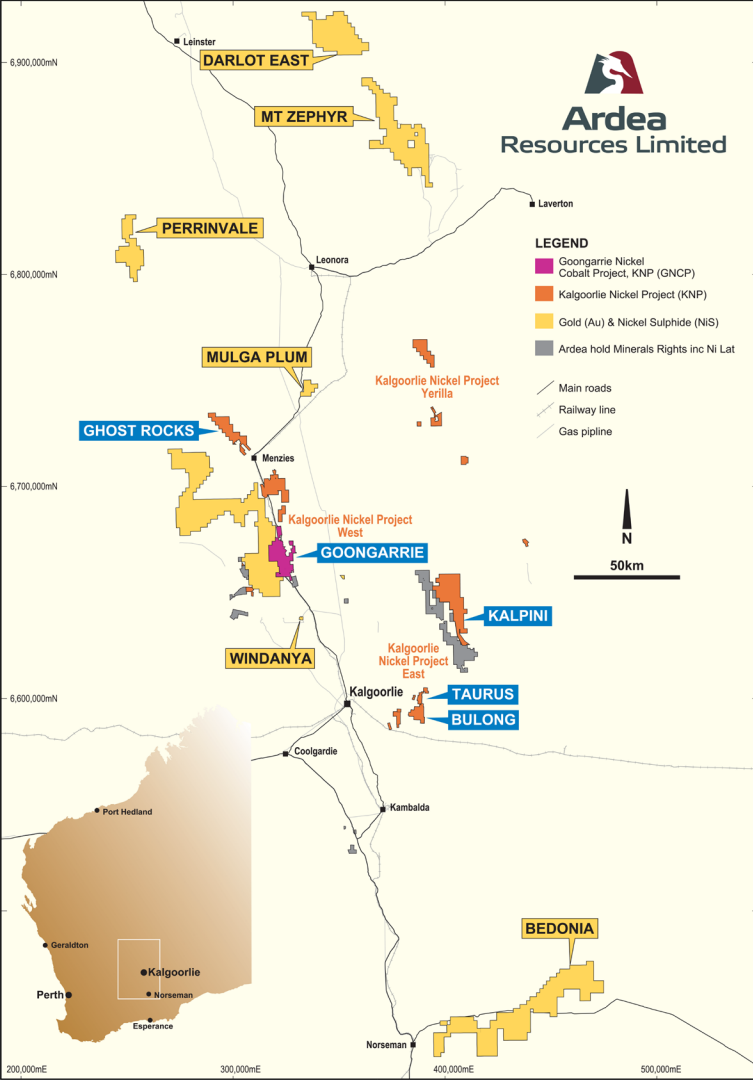


	RESERVES - AUSTRALIAN BULK TONNAGE NICKEL						
Ardea¹	Kalgoorlie Nickel Project, WA			Nickel Laterite			
Classification	Mt	% Ni	% Co	ppm Sc	tonne Ni	tonne Co	tonne Sc
Proved	9.0	0.96	0.10	not quoted	85,920	8,950	
Probable	31.18	0.78	0.09	not quoted	243,538	28,062	
Total	40.1	0.82	0.09	not quoted	329,458	37,012	
Glencore²	Murrin Murrin Operation, WA			Nickel Laterite			
Proved	103.6	1.03	0.08	not quoted	1,070,188	82,880	
Probable	37.80	1.04	0.10	not quoted	393,120	38,934	
Total	141.4	1.03	0.09	not quoted	1,463,308	121,814	
BHP³	Nickel West Operation, WA			Nickel Sulphide			
Proved	182.0	0.57	not quoted	not quoted	1,028,950		
Probable	77.35	0.73	not quoted	not quoted	562,170		
Total	258.4	0.62	not quoted	not quoted	1,591,120		
Clean TeQ⁴	Sunrise Project, NSW			Nickel Laterite			
Proved	65.5	0.65	0.10	48	422,475	67,465	31
Probable	81.9	0.49	0.08	57	403,767	68,796	47
Total	147.4	0.56	0.09	53	826,242	136,261	78
Australian Mines⁵	Sconi Project, Qld			Nickel Laterite			
Proved	8.1	0.72	0.09	44	57,940	7,286	4
Probable	49.2	0.55	0.08	33	273,417	37,195	16
Total	57.3	0.58	0.08	35	331,357	44,481	20

Data Sources

1. Ardea ASX Announcement, 28 March 2018, "Ardea Delivers Outstanding Pre-Feasibility Study for the Goongarrie Nickel Cobalt Project with Significant Expansion Potential".
2. Glencore Annual Report 2019, page 246, Resource Statement 31 December 2019.
3. BHP Limited, 2019 Annual Report to 30 June 2019, page 288.
4. NI 43-101 Technical Report, 25 June 2018.
5. Australian Mines Quarterly Report March 2020, ASX Announcement 18 May 2020.





Exploration Upside



- ❑ >5,100km² of 100% controlled tenure in one of Australia's premier gold and nickel sulphide provinces
- ❑ Extensive tenure position provides multiple strategic options
- ❑ Priority focus on flagship KNP and GNCP
- ❑ Active exploration:
 - ❑ **nickel sulphide**, amenable to autoclave feed, potential metallurgical benefits plus extra nickel and sulphur units
 - ❑ gold exploration with major focus within and adjacent to Kalgoorlie Nickel Project, potential cash-flow opportunities at Big Four Gold to help fund KNP studies
- ❑ Multiple work streams in progress to maintain strong investor news flow