# APOLLO MINERALS LIMITED

# Unlocking Kroussou's Province Scale Zinc Potential

# **April 2022 Company Presentation**

ABN: 96 125 222 924

# Disclaimer

### **Forward Looking Statements:**

This presentation may include forwardlooking statements. These forward-looking statements are based on Apollo Minerals Limited's (Apollo Minerals) expectations and beliefs concerning future events. Forward looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of Apollo Minerals, which could cause actual results to differ materially from such statements. Apollo Minerals makes no undertaking to subsequently update or revise the forward-looking statements made in this announcement, to reflect the circumstances or events after the date of that announcement.

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### **Competent Persons Statement**

The information in this presentation that relates to Exploration Results and the Process and Metallurgy for the Kroussou Project in Gabon are extracted an ASX announcements on 3 September 2019, 15 January 2020, 30 April 2020, 29 July 2020, 29 January 2021, 21 July 2021, 30 August 2021, 1 September 2021, 24 February 2022, 16 March 2022 and 20 April 2022 which are available to view at www.apollominerals.com.

The Company confirms that (a) it is not aware of any new information or data that materially affects the information included in the original announcements; (b) all material assumptions and technical parameters underpinning the content in the relevant announcements continue to apply and have not materially changed; and (c) the form and context in which the Person's Competent findings are presented have not been materially modified from the original announcements.

# **Our Vision**

To realise Kroussou's province-scale Zinc potential, and create maximum value as a low carbon, globally responsible base metals producer

# Why Apollo Minerals

- 100% ownership of Kroussou Lead-Zinc (Zn-Pb) Project
- Province scale deposit
- Shallow, sulphide mineralisation unique worldwide
- Highly positive metallurgical test results
- Strong exploration results to date
- Aiming to have one of the lowest carbon footprints in the market segment (abundant hydropower, nearby rail, low strip potential)
- Zinc vital to a low-carbon energy future
- Impending supply deficit mounting for Zinc
- Significantly undervalued compared to peers
- Identified value pathway: Exploration, Targeting, Metallurgical, Resource, Feasibility



# **Gabon - A Successful Mining Region in Africa**

### **Unique Existing Infrastructure**

- $\checkmark$  One of the largest ports in Africa<sup>1</sup>
- ✓ Extensive rail network (200km from the Project)
- ✓ Abundant Hydropower (200MW, +80MW planned)
- ✓ Site Access: Sealed N1 road to nearby town of Yombi

### Proven Mining, Oil and Gas Sector

- ✓ World leader (#2) in high-grade Manganese mining (COMILOG)
- ✓ Oil: approximately 30% of GDP, 76% export value, 39% of state revenue
- $\checkmark\,$  Oil production of around ~200,000 barrels daily

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# Growing presence of, Australian listed companies in the region

- ✓ Fortescue Metals Group (ASX: FMG) Dec-21
- ✓ Armada Metals (ASX: AMM) Dec-21
- ✓ Genmin Limited (ASX: GEN) Mar-21







### Gabonese Goal to reach "Emerging Country" status by 2025



Upper middle-income status, and high gross domestic product (GDP) per capita



### **Supportive Operating Environment**

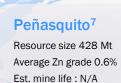
- ✓ Modern and transparent mining code with highly supportive government and local communities
- ✓ Tax holidays of between 3-8 years depending upon project life
- ✓ Royalty of 3-5% on base metals (negotiable within Mining Convention)
- ✓ VAT Exemption for explorers through 'Mining Convention'

# **Impending Zinc Supply Deficit**

4 out of 10 major producers estimated to have less than 10 years remaining of mine life

Red Dog<sup>1</sup> Resource size: 37Mt Average Zn grade: 12%

Est. mine life: 9 years



Antamina<sup>2</sup> Resource size 121 Mt Average Zn grade 2% Est. mine life: 6 years<sup>2</sup>

### San Cristobal<sup>8</sup>

Resource size: 37 Mt Average Zn grade: 5.9% Est. mine life : N/A

Est. mine life : N/A Sources: <sup>1</sup>Teck Resources 2021 Annual Information Form; <sup>2</sup>Teck Resources 2021 Annual Information Form; <sup>3</sup>Vedanta Resources\_IR 2021; <sup>3.1</sup> <u>https://www.mining-technology.com/marketdata/ten-largest-zincs-mines-2020/</u> <sup>4</sup>NCZ - 15-Sep-21Feasibility Study Demonstrates Compelling Value Proposition for In-situ Resource Development at Century; <sup>4.1</sup>Century Ore Reserves as of 30 June 2021; <sup>5</sup> 2021-June-Kinsevere-Mineral-Resource-Ore-Reserves-Statement-update; <sup>6</sup> Glencore 2021 Annual Report; <sup>7</sup>Newmont Regional Operating Statistics 2021 and 2021 Annual Report; <sup>8</sup>

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MINERALS LIMITED

Century

**Sindesar Khurd** 

Resource size: 66 Mt Average Zn grade: 4%

Est. mine life: N/A

Rampura-Agucha Resource size 34 Mt<sup>3</sup>

Est. mine life: 5 years<sup>3.1</sup>

McArthur River<sup>6</sup>

Resource size: 152 Mt

Average grade 10%

Est. mine life : N/A

average grade: 10%<sup>3</sup>

Resource size: 53 Mt (Tailings) 12 Mt (In-Situ)<sup>4.1</sup> Average grade: 3% (Tailings) 6%(In-Situ)<sup>4.1</sup> **Est. mine life: 5 years<sup>4</sup>** 



Resource size: 679 Mt average grade: 6% Est. mine life : N/A

### **Dugald River<sup>5</sup>**

Resource size 66 Mt Average grade 12% Est. mine life : N/A

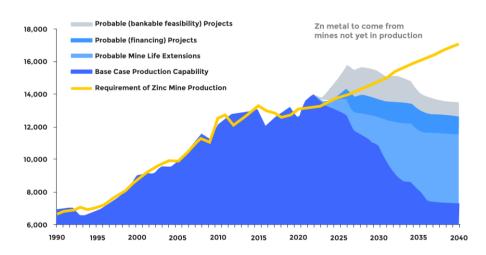
# Zinc – A Critical Metal

### New mines are essential to meet demand

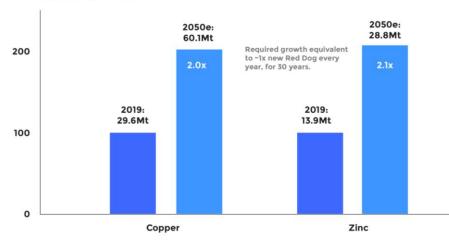
- Zinc is seeing all time high prices with a supply deficit mounting
- Current demand mainly driven by the production of galvanised steel
- Future demand will be driven by traditional applications and essential ingredients of a decarbonising world<sup>1</sup>
- Zinc vital to a low-carbon transition Renewable Energy, Batteries, Mobility<sup>2</sup>
- Solar Energy transition will increase zinc demand



### Wood Mackenzie Forecast Kt Zn



### Clencore Forecast (1.5c warming scenario) Market Size (2019=100)



# Zinc – Vital to the Low-Carbon Energy Transition

- Stationary power storage market is expected to grow by 34% pa from 2021-2030<sup>1</sup>
- Zinc batteries provide the potential to capture much ٠ of the stationary energy storage market share<sup>1</sup>
- Zinc used in multiple aspects of renewable energy ٠ production

"Meeting future energy needs with renewables and battery technologies is metals intensive and is expected to drive primary demand for cobalt, copper, nickel and zinc to multiples of current levels" - Glencore 2020 Climate Report

A 10 MWh offshore wind turbine requires 4 tonnes of zinc coating to handle extreme environmental conditions



Galvanized steel requires zinc and is the preferred material used by electric vehicle manufactures

Zinc Use in Renewables (t)



Zinc's Role in Renewable Energy Production<sup>2</sup>

Zinc is a key ingredient in

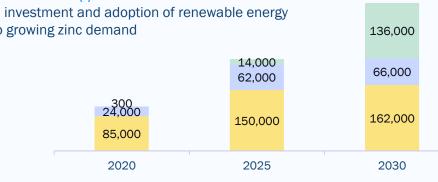
battery technology

Zinc is 100% recyclable

A 100MWh solar power farm requires 240 tonnes of zinc coatings to protect panel fixture



Zinc-ion batteries are safer than lithium-ion batteries -waterbased chemistry



Accelerated investment and adoption of renewable energy is leading to growing zinc demand

Solar Offshore Wind Storage Battery

# Zinc – Multiple Battery Manufactures

The potential to capture the majority of the stationary energy storage market<sup>1</sup>



Eos Energy utilises a zinc hybrid cathode, and have recently announced plans to expand its production facilities to 800MWh pa to meet demand of the backlog of orders of nearly 1GWh for utility customers in the USA and India.



Reflow have developed a modular zinc bromine flow battery. Recently completed a 2MWh installation at a bioenergy facility in California. Up to 12 hours discharge duration with a 10kWh modular design.







Sources: Macquarie Strategy, April 2022<sup>1</sup>; https://eosenergystorage.com; https://redflow.com; https://e-zinc.ca; https://www.zinc8energy.com/



E-Zinc have developed an electrochemical technology for storing energy in zinc metal. Recently raised US\$25M to commence pilot production. Up to 80% less costly than Li-ion and operate for up to five days in a range of climates. Applications include grid,

off-grid and back-up power.



Zinc8 Energy Solutions have developed innovative battery technology that uses zinc and air as fuel. Zinc8 is at the pre-commercial stage with a pilot project to install a 1.5MWh battery in combination with solar panels at a residential facility in New York.



# Zinc vs. Li-ion batteries

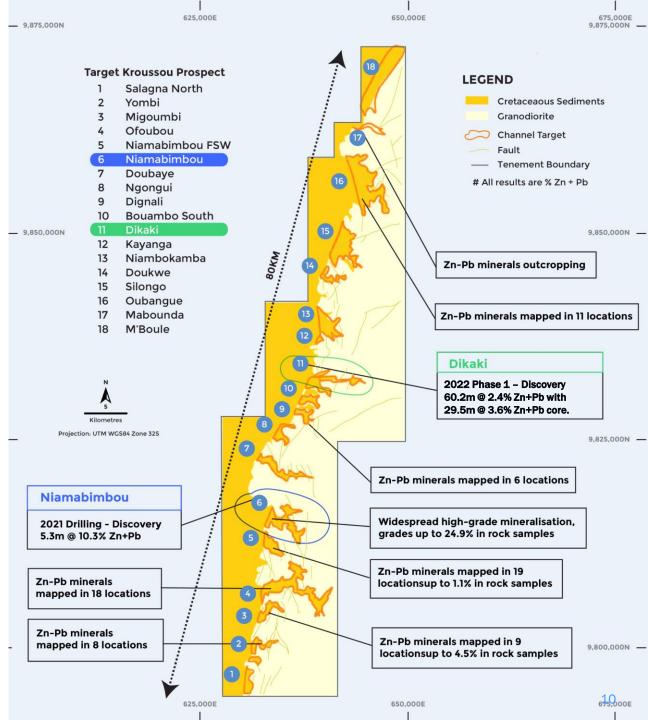
- Recyclable/Reusable
- Fire Resistant
- Wide Operating Temperature Range
- ✓ Long Lifetime
  - Flexible and Scalable
- Affordable

 $\checkmark$ 

# Kroussou – Province Scale Zn-Pb

# We've barely scratched the surface

- Shallow, sediment-hosted sulphide mineralisation unique worldwide
- +80km trend of mineralisation, Zn-Pb outcropping across project
- ~1,000km<sup>2</sup> of sedimentary basin (total area of prospects)
- 18 prospects, only 3 drilled to-date (Niamabimbou and Dikaki)
- Results to date demonstrate the province-scale potential
- Significant demonstrated potential at multiple other defined target areas
- Broader, deeper sections of the west basin remain completely untested
- Shallow mineralisation conducive to low strip and open pit mining potential
- Significant success from recent drilling
- Drilling Underway



# **Sulphide Mineralisation From Surface**

Multiple styles of Zn-Pb mineralisation point to rich potential for exploration across numerous targets







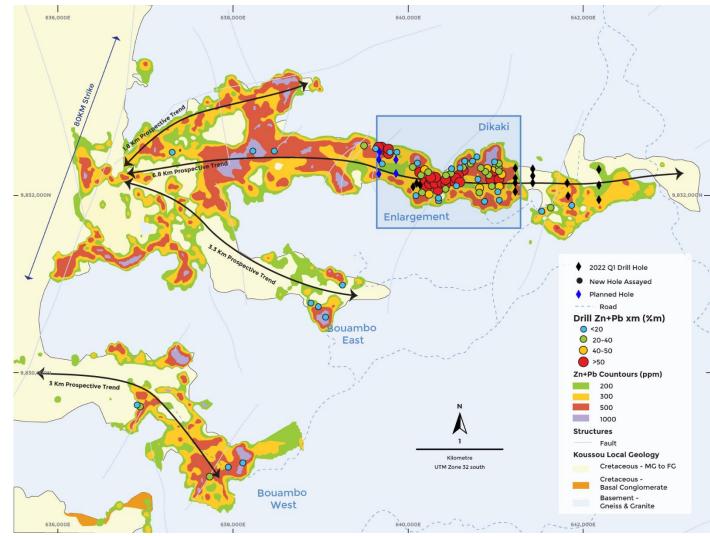






# Dikaki – 1 of 18 Prospects

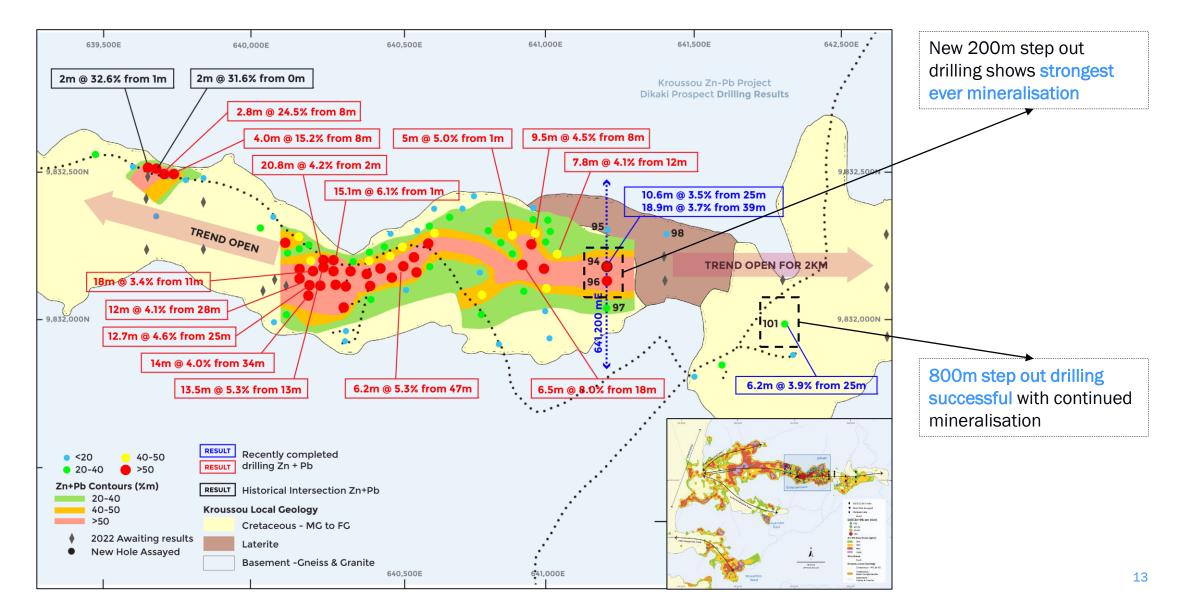
### Assays confirm shallow, extensive mineralised (Zn-Pb) system



- Significant shallow, high-grade, intercepts including:
  - combined 29.5m @ 3.6% Zn+Pb from 25.5m
    - within 60.2m @ 2.4% Zn+Pb from 1.9m
  - 32m @ 3.1% Zn+Pb from 4.0m
    - including 13.5m @ 5.3% Zn+Pb from 12.8m
  - 10.3m @ 5.4% Zn+Pb from 18m
    - including 6.5m @ 8.0% Zn+Pb
  - 15.1m @ 6.1% Zn+Pb from 0.7m
  - 20.8m @ 4.2% Zn+Pb from 2.4m
  - 4.1m @ 15.2% Zn+Pb from 8.1m
  - 2.0m @ 32.6% Zn+Pb from 0.9m
- Dikaki alone has >8km of identified mineralisation strike, average channel width of 400m, average depth to mineralisation < 18m, average intersected thickness 20m</li>
- Demonstrated high-grade concentrates and high recoveries

# **Dikaki – Eastern Extensions**

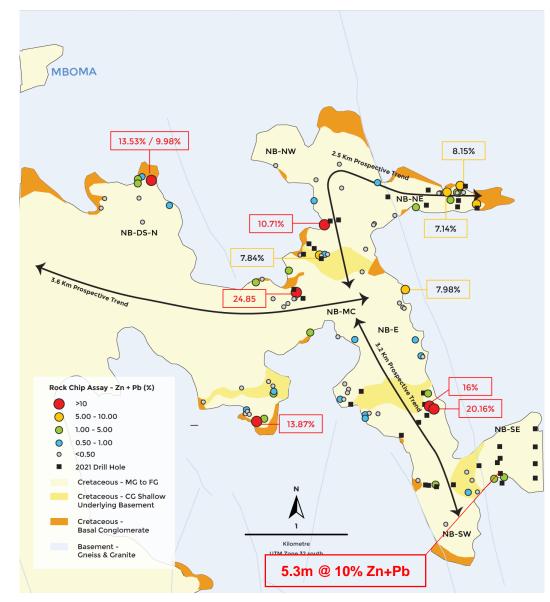
### **Step-out drilling proves to be a game changer for Dikaki**



# **Niamabimbou – Emerging Discovery**

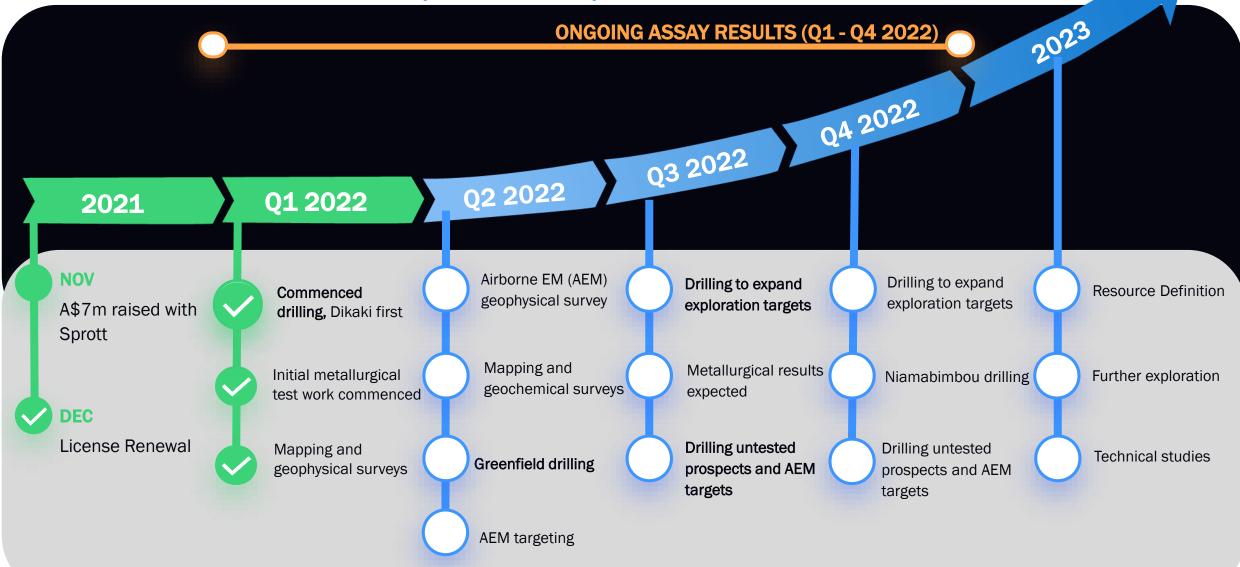
# High grade mineralisation in 2021

- Maiden, broad-scale, drilling completed in 2021 for 2,170m
- Base metal sulphides identified in multiple zones
  - 5.3m @ 10.3% Zn+Pb and 3g/t Ag from 54.7m within a broader zone of 27.1m @ 2.9% Zn+Pb from 33.8m - open to the east and along section;
  - 3.5m @ 4.6% Zn+Pb and 2g/t Ag from 63.8m within a broader zone of 21.0m @ 2.0% Zn+Pb from 46.2m;
  - 5.7m @ 3.0% Zn+Pb from 22.2m within a broader zone of 19.9m @ 1.6% Zn+Pb from 8.0m; and
  - 4.5m @ 2.8% Zn+Pb from 27.4m within a broader zone of 19.9m @ 1.6% Zn+Pb from 13.5m.
- Multiple, untested, mineralised outcrops extending over wide areas and >9km of strike
- >20km of prospective contact within the broader > 9km strike



# Work Program and News Flow Going Forward

**Results to date demonstrate the province-scale potential at Kroussou** 



# **ESG Highlights**

### Apollo Minerals puts health and safety first with a key focus on safety and environment preservation and community support



### PLANET

### Environment

- ✓ Low impact exploration with rehabilitation
- ✓ Minimise waste
- ✓ Conservative footprint
- ✓ Supply chain integrity

### Social

✓ Safety and security

PEOPLE

- ✓ Gabon community engagement
- ✓ Local Employment
- ✓ Culture, care and respect initiatives

# Governance PROSPERITY

- Committed to transparency
- ✓ Leadership development
- Board and Management diversity
- Critical Risk Management control standards in place
- Hazardous risk identification, legal and compliance training

# **Executive & Management**

# Extensive development and mining experience across Africa

### John Welborn Non-Executive Director



Mr Welborn is a highly accomplished and internationally respected resource company Director with significant African experience. This French speaking Director has operated extensively in West and Central Africa, including the successful development and/or operation of mining projects in Mali, Cote D'Ivoire, Burkina Faso, Ghana, Senegal, Gabon, Cameroon and the Republic of Congo.



# Robert Behets Non-Executive Director

Mr Behets is a geologist with over 28 years' experience in the mineral exploration and mining industry in Australia and internationally. Mr Behets was instrumental in the founding, growth and development of Mantra, an African-focused uranium company, through to its acquisition by ARMZ for approximately A\$1 billion in 2011.

### Neil Inwood Executive Director



Mr Inwood is a Geologist with over 25 years' international experience in the exploration and mining industry, particularly in base metals, gold and speciality metals. He has had significant management, consulting, and venture capital experience, and was previously Managing Director of Berkut Minerals Limited, Executive Geologist with Verona Capital, Principal Resource Geologist with the international mining consultancy Coffey Mining, and spent nine years with Barrick Gold.

### **Ian Middlemas**

### **Non-Executive Chairman**

Mr Middlemas was a Senior Group Executive for Normandy Mining for more than ten years, which was Australia's largest gold miner before merging with Newmont Mining. He is currently Chairman of a number of ASX listed resource companies and was previously Chairman of Papillon Resources Limited and Mantra Resources Limited.



### Hugo Schumann Non-Executive Director

Mr Schumann has more than 15 years' experience in the development of mining and energy projects globally across a range of commodities. Named as a Rising Young Star in Mining by Mines & Money in London. Currently the CFO of a US-based copper technology company backed by BHP, Freeport McMoRan and Teck. Mr Schumann holds an MBA from INSEAD and is a CFA Charterholder.

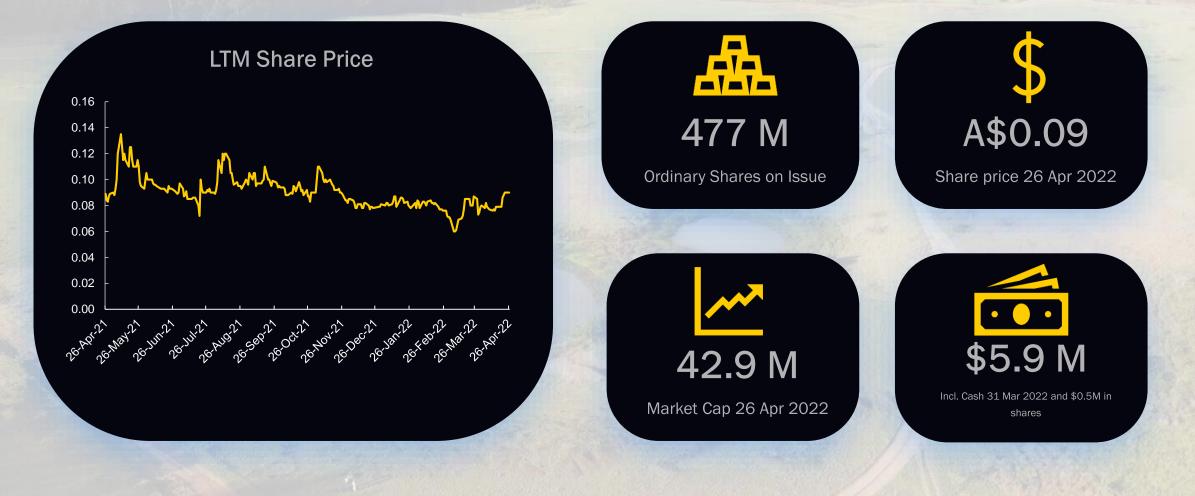
### Ajay Kejriwal Non-Executive Director



Mr Kejriwal has over 25 years' experience in finance and commerce, and is currently a consultant to Juniper Capital, a natural resource investment and advisory business. Prior to Juniper Capital, he was a banker leading many investment transactions across oil and gas, mining, real estate and asset management sectors.

# **Corporate Overview**

**ASX: AON – Apollo Minerals** 



# Thank you













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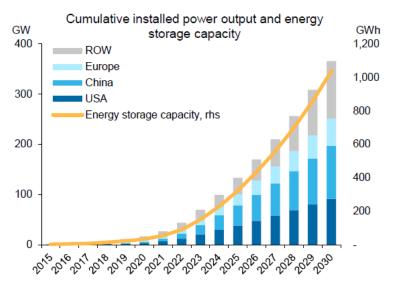
# Appendix

# Zinc – Developing Technology for Large-Scale Battery Storage

### Cheaper zinc batteries can help deliver full potential of renewable energy<sup>1</sup>

- Stationary power storage market is expected to grow by 34% pa from 2021-2030.
- Li-ion batteries are currently the most commonly used technology in grid applications due to their combination of high energy density, high power density and cycle life.
- Li-ion batteries are expensive and require thermal management systems due to safety risks.
- It is expected that non-Li-ion batteries will start making inroads from 2025 as competing technologies are developed further and reach commercialisation.
- Zinc batteries are being commercialised for backup power for data centres, several companies developing zinc batteries for grid storage, microgrids, residential and commercial applications.
- The average **zinc content** of a zinc battery is around **2,000kg per MWh**.





### Annual Zinc Demand, (kt)<sup>1</sup>

ر 200	20% market share 50% market share
180 -	
160 -	"Assuming a market share of 20- 50% of the total power storage
140 -	market by 2030, this equates to
120 -	annual zinc demand of 70-
100 -	180ktpa"
80 -	
60 -	
40 -	
20 -	
<b>o</b> +	2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

### 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

### Challenges with utility scale Li-ion batteries<sup>1</sup>

- Li-ion battery safety risks make them less suited for wide-scale use in homes, utilities and businesses.
- Regulations have been tightened after a utility battery storage facility exploded in 2019 due to a faulty Liion cell.
- × Fire suppression systems are required, adding to the cost.
- Under extreme temperatures the cycle life of Li-ion batteries can deteriorate, may underperform in some climates.
- Growth in energy storage is most likely going to be focused on larger projects (GWh) and longer duration storage (>6 hours) versus the relatively small (MWh), short-term duration (2 to 4 hours) typically seen today.

# **Significant ASX Recent Zn+Pb Discoveries**

	APOLLO MINERALS LIMITED		STRICKLAND <sup>3</sup> METALS LIMITED
Market Cap (A\$m) <sup>1</sup>	42.9	232.7	76.1
Project	Kroussou	Earaheedy	Iroquois
Location	Gabon	Western Australia	Western Australia
Stage	Exploration (no resource)	Exploration (no resource)	Exploration (no resource)
Ownership	100%	75%	80%
Style	MVT	SEDEX	SEDEX
Prospective Strike	80Km	45km	30km

# Libreville – April 2022









# **Strong Local Infrastructure**

Good access for exploration and excellent optionality for potential future transport solutions



# **Exploration Access**

Supports strong logistical flow of equipment and staff between capital and site

Sealed N1 road access from Libreville to nearby town of Yombi

### Site Access

Robust road and forestry tracks to project site supported by logging industry

Enables good access to exploration targets across large areas



Road, Rail, River Transport Options

<370km by road to Libreville Port Rail siding 240km from site at Ndjole Town Yeno river port ~65km on good roads

