

19th Tactic Conference

Port Augusta

Dr Paul Heithersay PSM | 16 August 2023

energymining.sa.gov.au



Acknowledgement of Country

As guests here on Barngala land, we acknowledge everything this department does impacts on Aboriginal country, the sea, the sky, its people and their spiritual and cultural connection which have existed since the first sunrise. Our responsibility is to share our collective knowledge, recognise a difficult history, respect the relationships made over time, and create a stronger future. We are ready to walk, learn and work together.

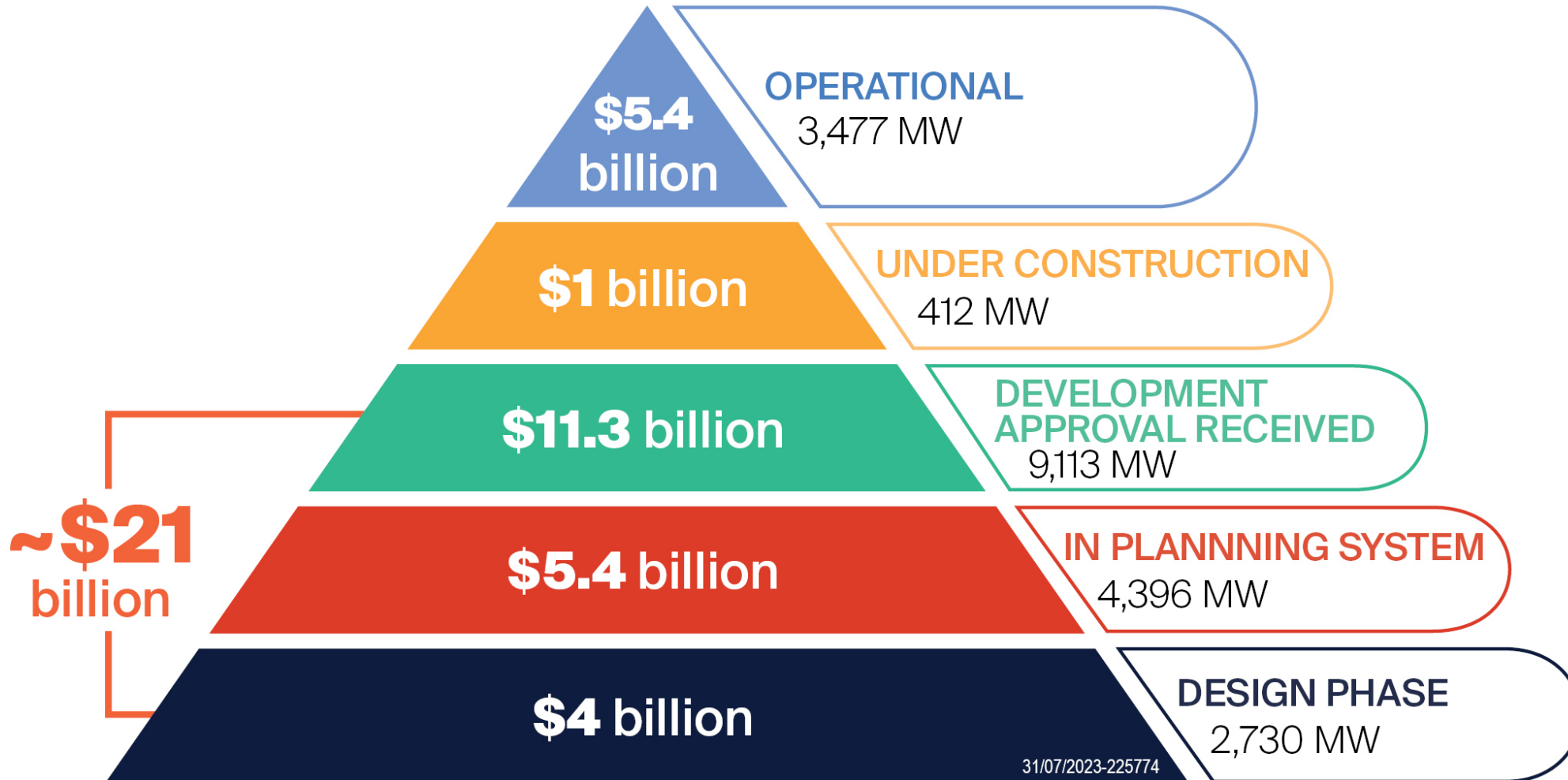




Bungala solar farm

CLEAN ENERGY PROJECTS PIPELINE

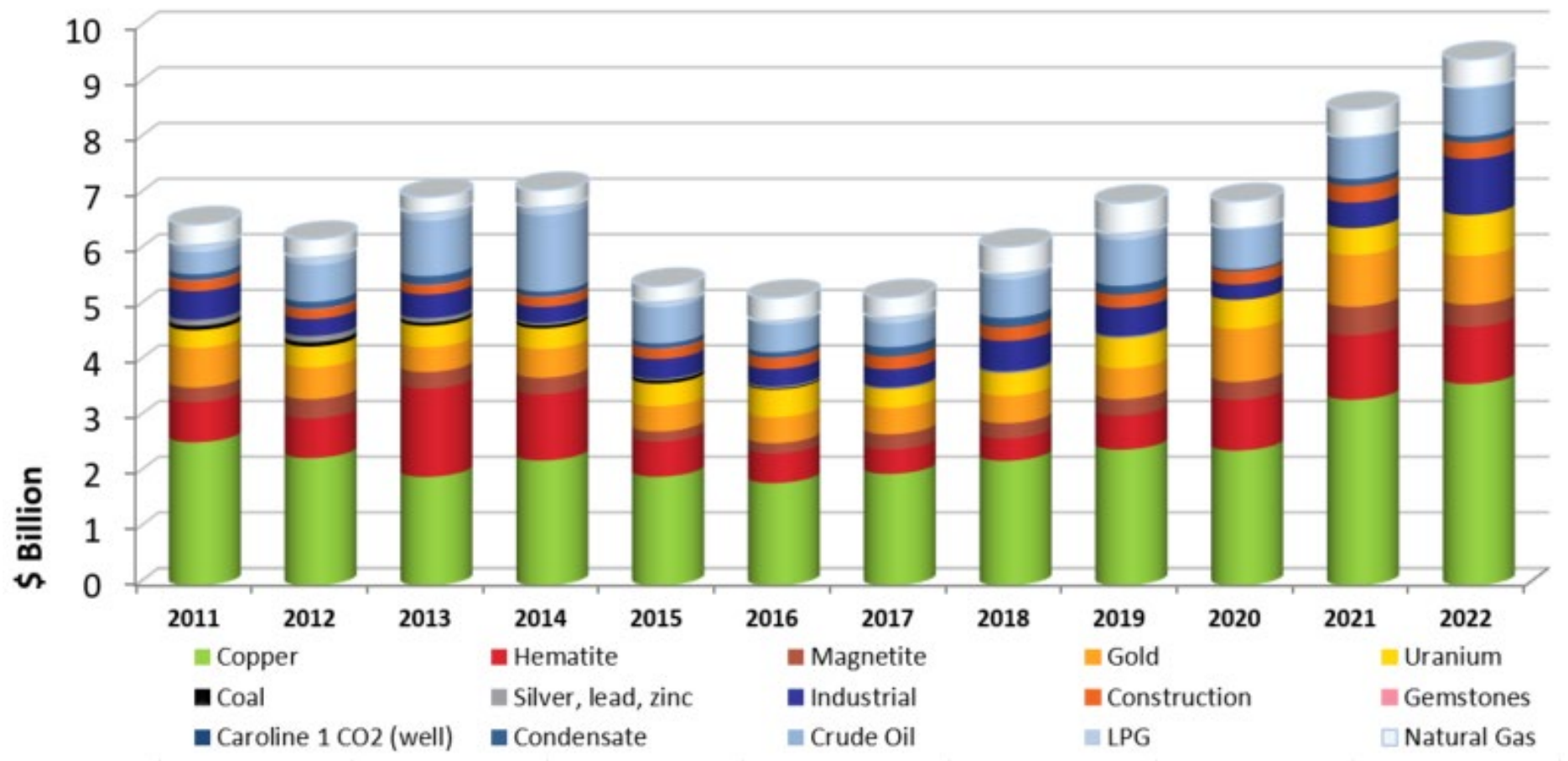
JUNE 2023



South Australia: State Budget Resource production value by commodity



- ✓ Record **\$9.7** billion production value calendar year 2022
- ✓ **\$8 billion** mineral production
- ✓ **\$1.7 billion** extractives
- ✓ From over **450** operations
- ✓ Record royalties **\$383** FY 2022



South Australian Economic Statement

Fit for the future

**An economy that is smart,
sustainable and inclusive.**

Three strategic missions:

- ✓ Capitalise on the global green transition
- ✓ Be a partner of choice in an unsecure world
- ✓ Build South Australia's talent.



Department for
Energy and Mining



Global trends affecting our future



Geopolitical
shifts



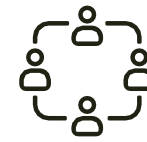
Decarbonisation
sustainability and
the circular
economy



Climate change
mitigation and
adaptation



Artificial
intelligence,
automation and
Technological
innovation



Labour
transitions



Societal shifts

Mission 1: Capitalise on the global green transition

Utilising South Australia's sustainability credentials and natural endowment to provide green energy, products and services to the world, contributing to both our smart and sustainable economy ambitions.

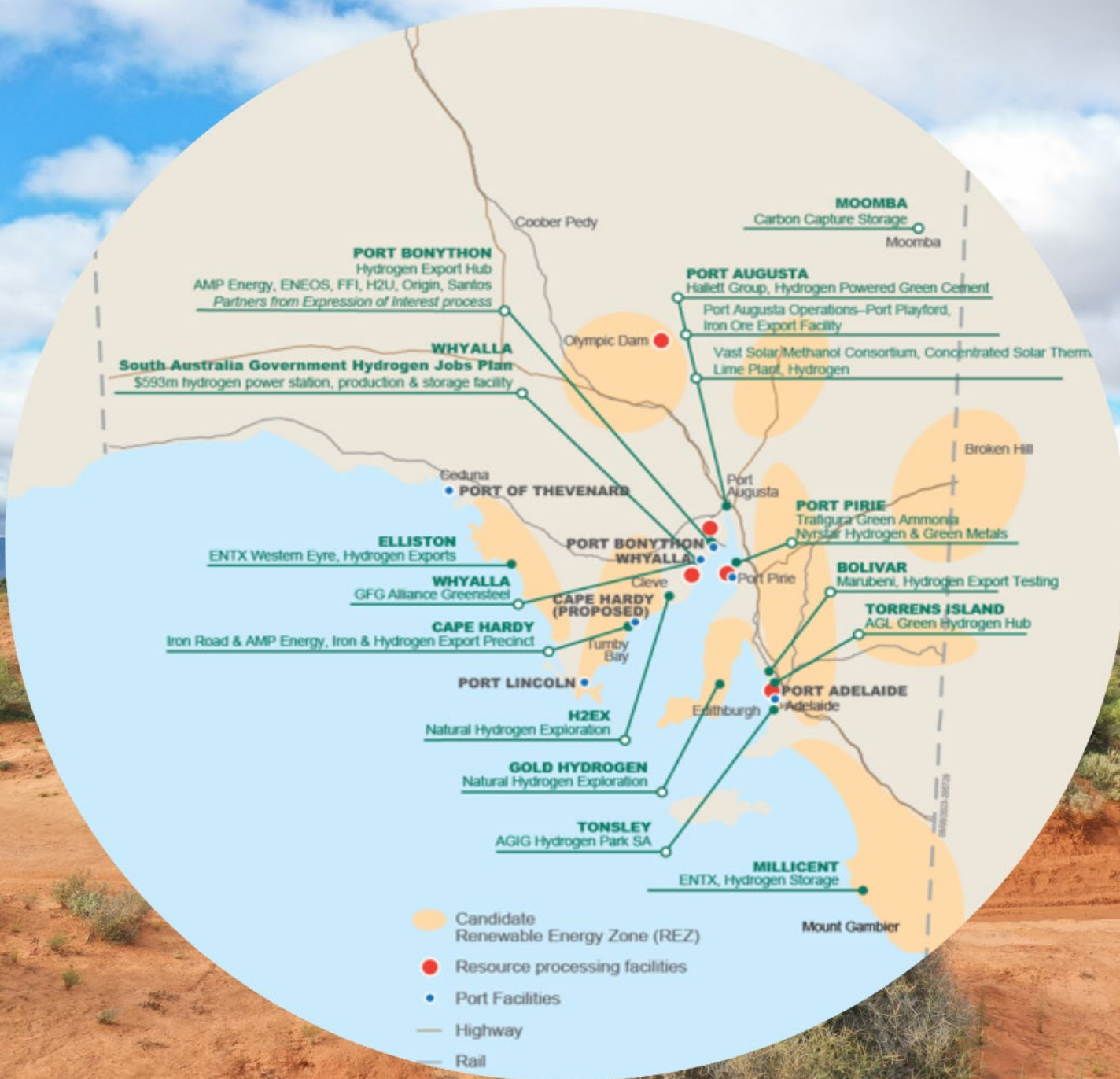
The levers of change

- Regulation and policy
- Industry development
- Leadership
- Reputation and verification
- Finance and funding



Spencer Gulf Powerhouse

- ✓ Home to valued mineral deposits
- ✓ Prospective critical minerals and processing
- ✓ Australia's largest multi-metals smelter
- ✓ Ideally positioned to produce hydrogen
- ✓ Uniquely placed to meet world's demand for green minerals, metals and fuels



Hallett Group

Comparative Carbon Emissions of regular GP Cement and Optimised Green Cement

500ktpa

Cementitious

82%

Reduction on emissions or

314kt CO₂

GP Cement

384kt CO₂

Emissions

Optimised Green Cement

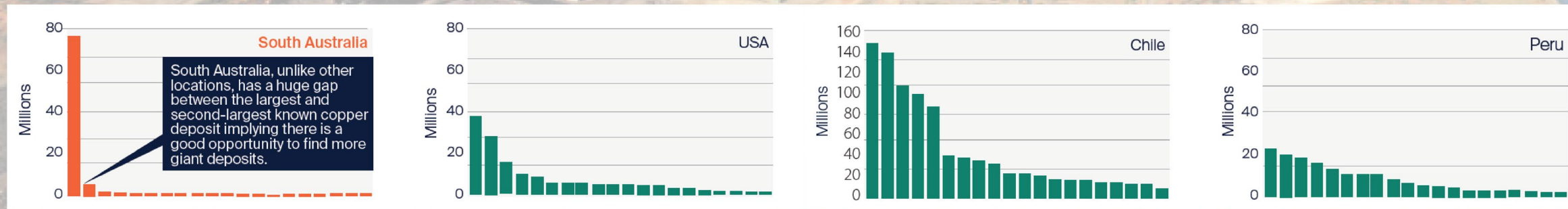
70kt CO₂

Emissions



Copper

- ⚡ SA has 69% of Australia's economically demonstrated resource of copper
- ⚡ SA's copper reserves at 13 Mega Tonnes
- ⚡ SA is home to the largest copper mine in Australia – Olympic Dam
- ⚡ SA produces more than 300,000 tonnes of copper per year



Coming into focus

Copper

- ✓ Elizabeth Creek copper cobalt – positive PFS
- ✓ Kalkaroo – copper gold cobalt project approved

Iron ore growth potential

- ✓ Buzzard – Iron Ore under construction
- ✓ Peculiar Knob mine – also potential for magnetite

Golden potential in the Central Gawler Craton

Uranium - Honeymoon

Great White Kaolin Project

Uptick in search for critical minerals



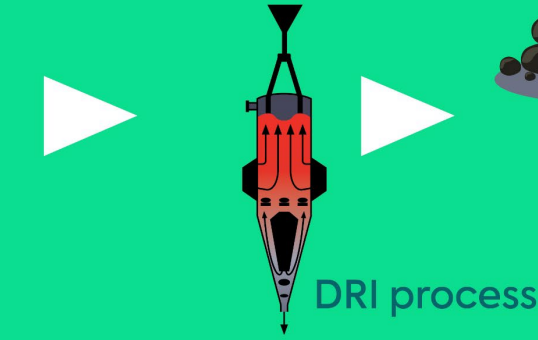
Hydrogen cuts steelmaking emissions

IRONMAKING

Reduce CO₂ emissions by

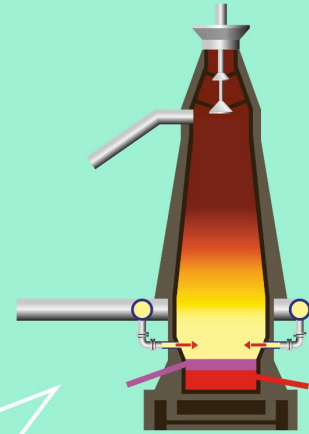
95%

Iron Ore Magnetite



HBI

STEELMAKING

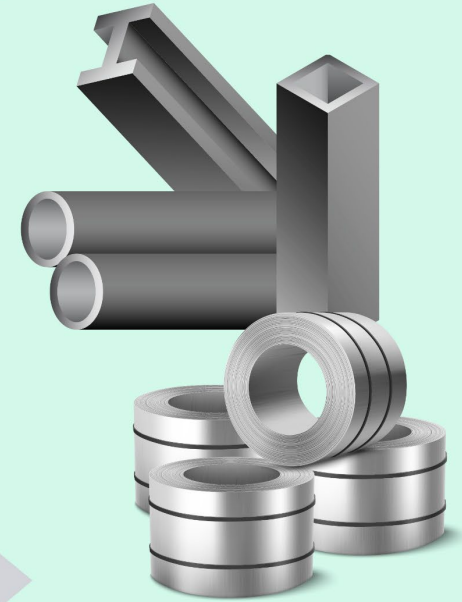


Electric arc furnace



Scrap metal

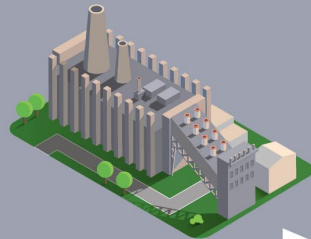
FINISHING



NEW WAY

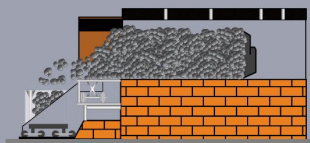
OLD WAY

Iron Ore Haematite

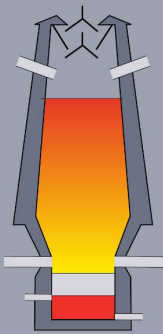


Sintering

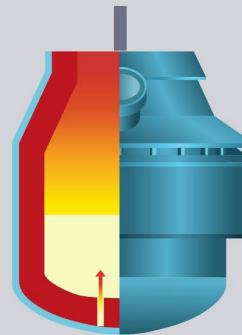
Metallurgical coal



Coke oven



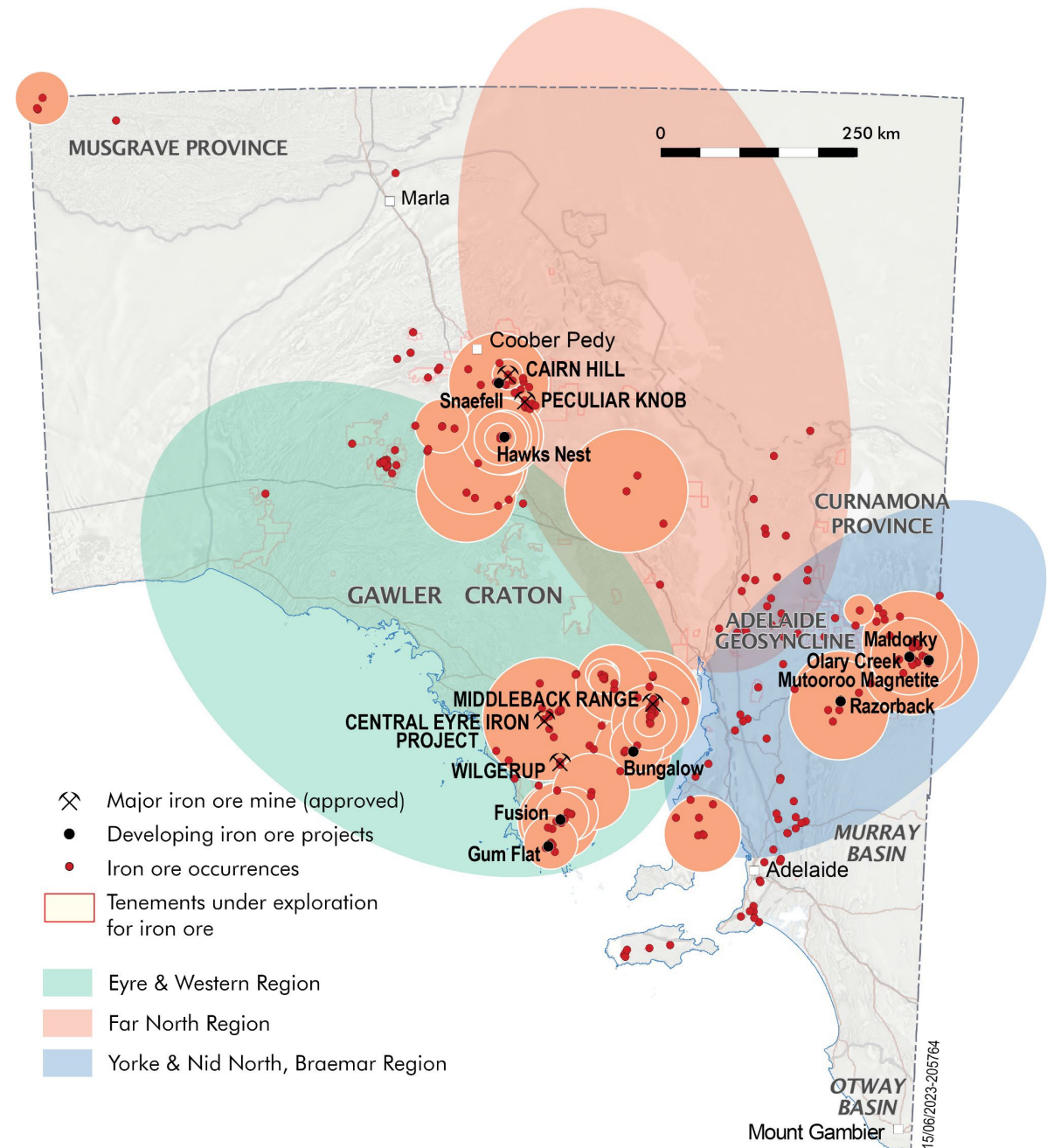
Blast furnace



Blast oxygen furnace

Magnetite

- ⚡ Economically demonstrated resource of 6 billion tonnes
- ⚡ Resource base of at least 15.9 billion tonnes
- ⚡ High grade magnetite
 - low in impurities
 - easy to process
 - low emissions steel-making



Port Pirie



White Paper published by



Resources for a changing world



Critical metals:

Australia's opportunity in the energy transition

Mission 2: Partner of choice in an insecure world

In an increasingly fragmented world, taking advantage of the relative security and stability of South Australia, as well as our industry strengths, to move our exports up the value chain to more complex products.

The levers of change

- Defence, space and cybersecurity industries
- AUKUS
- Sovereignty and **supply chains**



Playing to our strengths

Mineral sands | Graphite

Cobalt | Rare Earth Elements

Halloysite-Kaolin (HPA) |

Magnesium

Next steps

- ✓ clear understanding of our inventory
- ✓ processing hubs have opportunity to expand
- ✓ Geoscience, metallurgy, processing upskilling hub – R&D / education



Stock-take Commodity Summaries

OFFI

6
Graphite
12.01

Uses
Graphite is used as an anode in lithium-ion batteries and as a lubricant. The global demand for graphite is growing due to its use in storage.

References
Department for Energy Industry Minerals and Mining

72
Hf
Hafnium
178.49

40
Zr
Zirconium
91.224

Key deposit types/styles
Regions of interest in South Australia
Principal sources
Heavy mineral sand placers / palaeoplacers
Minor sources
Alkaline igneous rocks (e.g. carbonatites, caldasiltes)

4
Be
Beryllium
9.0122

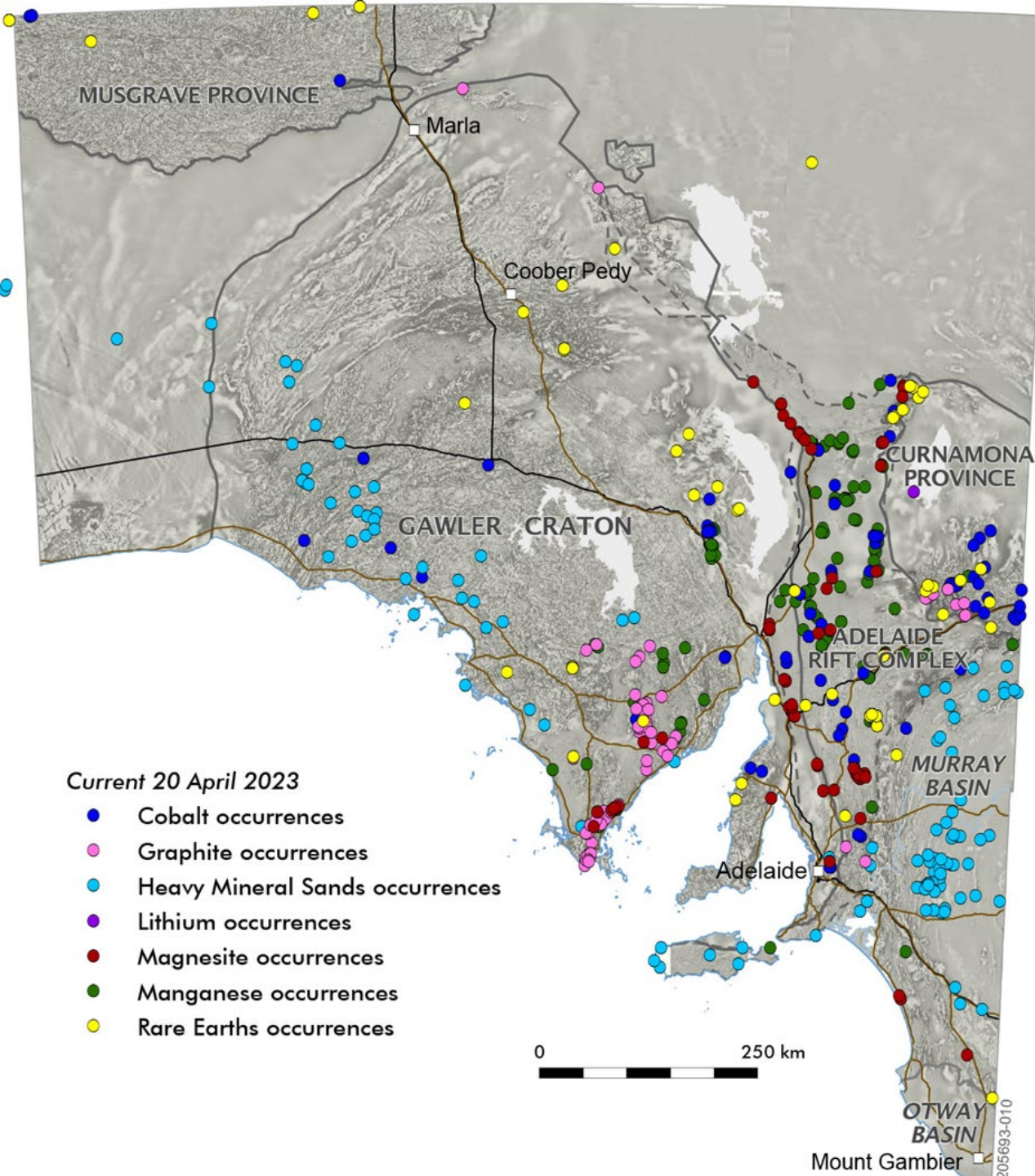
Key deposit types/styles
Regions of interest in South Australia
Principal sources
Unknown. The world-class bertrandite deposit at Spor Mountain, Utah, USA is currently the only known example of this deposit style which is economic.
Minor sources

83
Bi
Bismuth
208.98

Key deposit types/styles
Regions of interest in South Australia
Principal sources
W-, Pb- or Au-rich skarns (Bitch gales)

27
Co
Cobalt
58.933

Key deposit types/styles
Regions of interest in South Australia
Principal sources
Stratiform sediment-hosted copper
Magmatic nickel sulphide deposits
Nickel-cobalt laterite deposits
Minor sources
VMS deposits
Polymetallic (Ag-Ni-Co-Au-Bi) or Co-rich veins
Iron-oxide copper gold (IOCG)
MVT deposits
Secondary resources
Mine waste
Smelter slag



Current 20 April 2023

- Cobalt occurrences
- Graphite occurrences
- Heavy Mineral Sands occurrences
- Lithium occurrences
- Magnesite occurrences
- Manganese occurrences
- Rare Earths occurrences



Government of South Australia
Department for Energy and Mining

205693-010



Consulting with communities on the proposed Hydrogen and Renewable Energy Act - 2023



Mission 3: Build South Australia's talent

To assist our transition to a smart, sustainable and inclusive economy, enabling South Australia to make the most of economic opportunities arising from the above two missions, while ensuring all South Australians can participate and enjoy a higher standard of living.

The levers of change

- People
- Organisations
- Liveability
- Culture



RESA Scope of Activities: 2020 – 2023



1. Workforce Data and Insights



2. Traineeships and Apprenticeships in SA



3. Autonomous Operations



4. Skills Funding Advocacy



5. Skilled Migration



6. Aboriginal Economic Participation



7. Hot Rubble - Connect



8. Industry Pathways



9. Career Guidance



10 Emerging Skills:
eg Hydrogen, Automation and Remote Operations, Digital Skills



11 Regional skills initiatives – advocacy, guidance and support



12 Industry advice



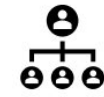
13 Industry conference collaborations

Top 3 Advertised Roles



53%

Trades and Operators



29%

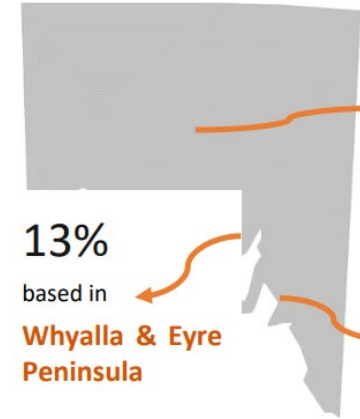
Professionals



10%

Supervisor/Managers

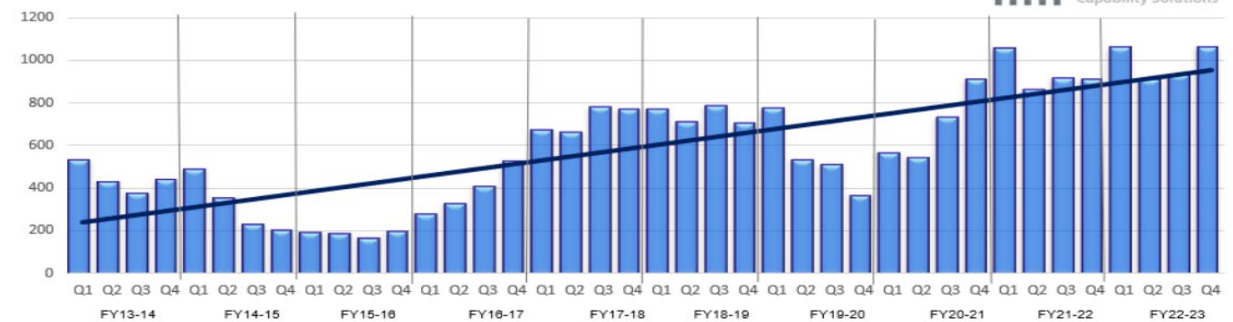
Regional Distribution



South Australian Mining and METS Sector

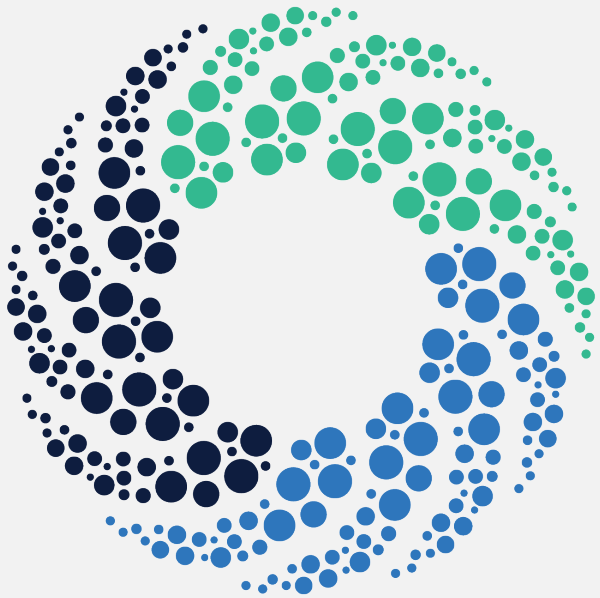
Hiring Intentions Data – Q4 FY22-23

Quarterly Job Advertisements



Hiring activity continues quarterly **record highs** in South Australia's mining and energy sectors for financial year Q4

(since RESA records commenced in 2013).



**20
23**

ENERGY & MINING
PREMIER'S AWARDS

Premier's Awards in Energy and Mining

Recognising company, organisation and individual achievements in the South Australian energy and mining sectors.

Key dates

- **Nominations close 31 August 2023**
- **Presentation dinner 9 November at SkyCity Adelaide**

For more information visit energymining.sa.gov.au

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