

Pyrite re-processing of critical-metal bearing waste for environmental gain

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*AusIMM Critical Minerals Conference
August 2024*

ASX: COB



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Strategic Priorities

ReMine+

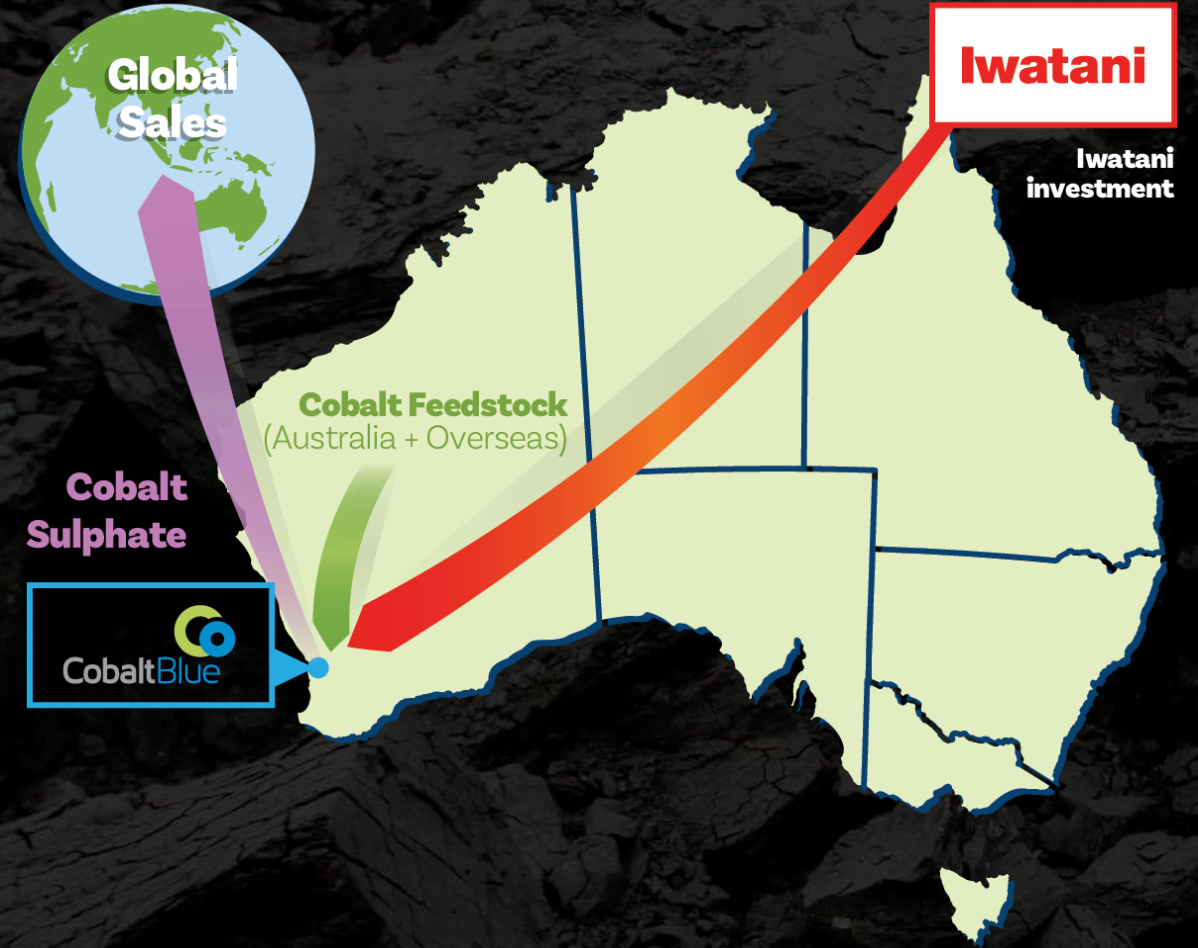
Global
*Unlocking Value
and Positive Impact
from Mine Waste*

Cobalt-Nickel
Refinery

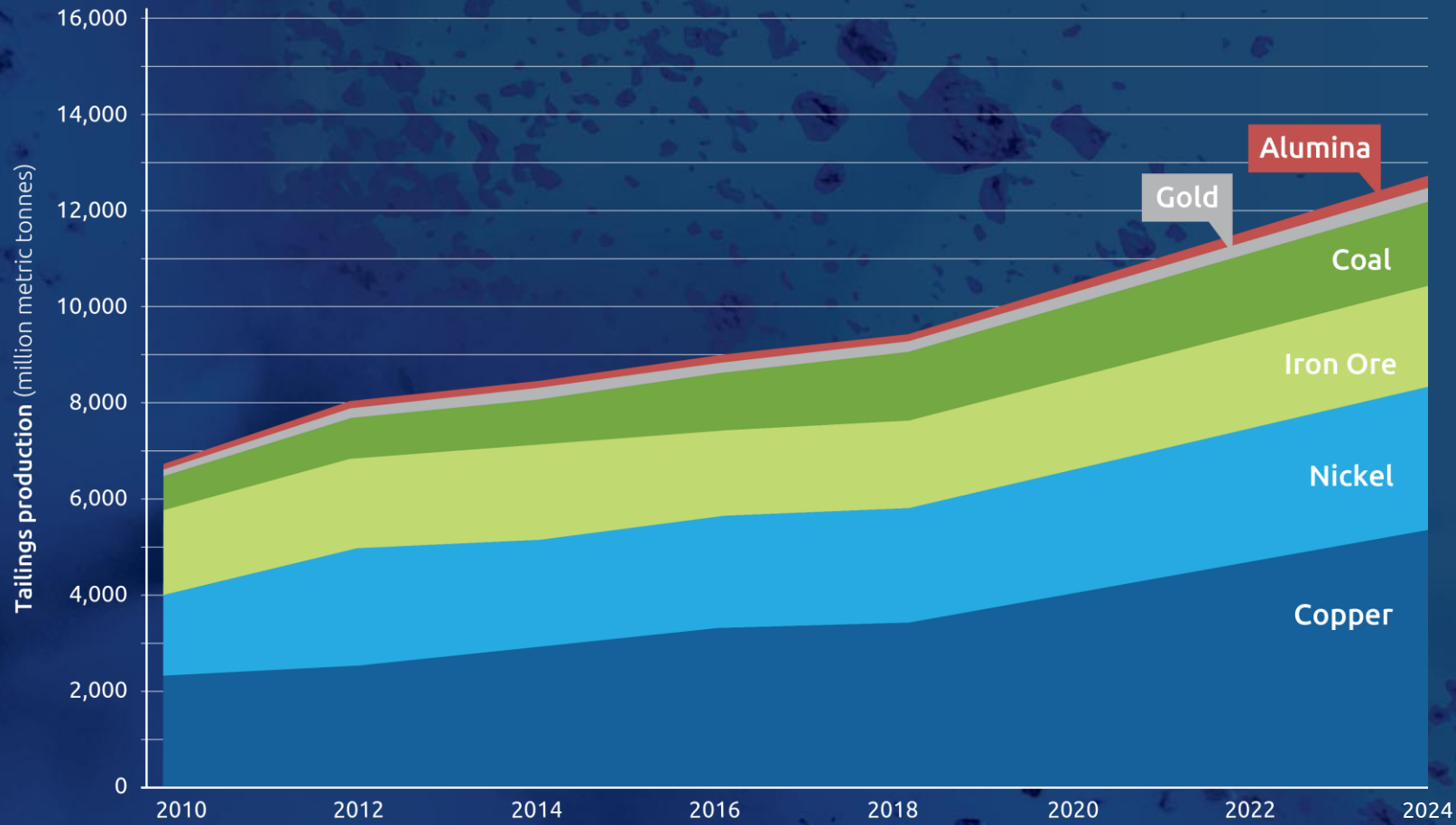
Kwinana, WA
*Metal Processing
for the Battery
Supply Chain*

Broken Hill
Cobalt Project

Broken Hill, NSW
*Responsibly
Sourced Cobalt*



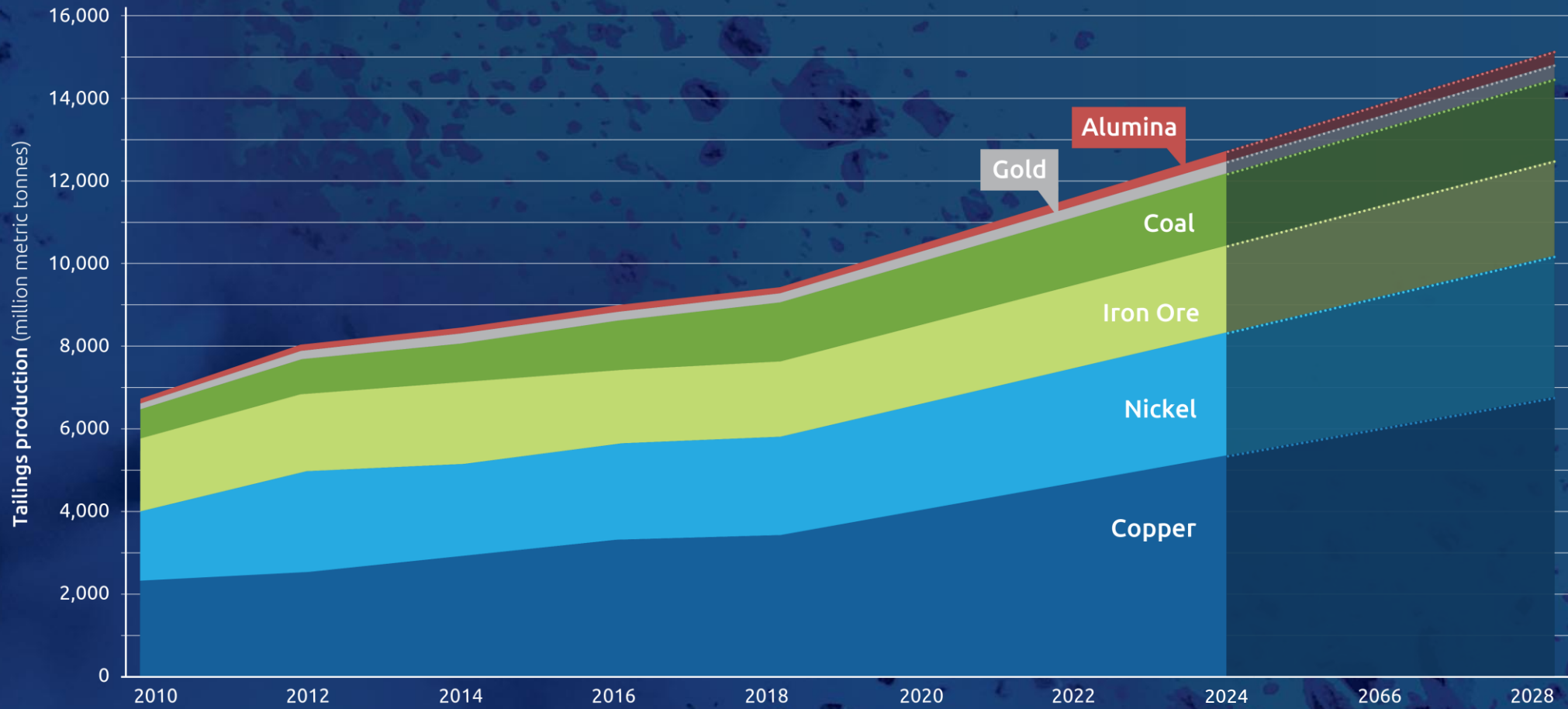
Global Mine Waste



Sources: International Council on Mining and Metals; Roadmap for Tailings Reduction, 2022; Global Mining Review, 2022; Valenta et al., 2023



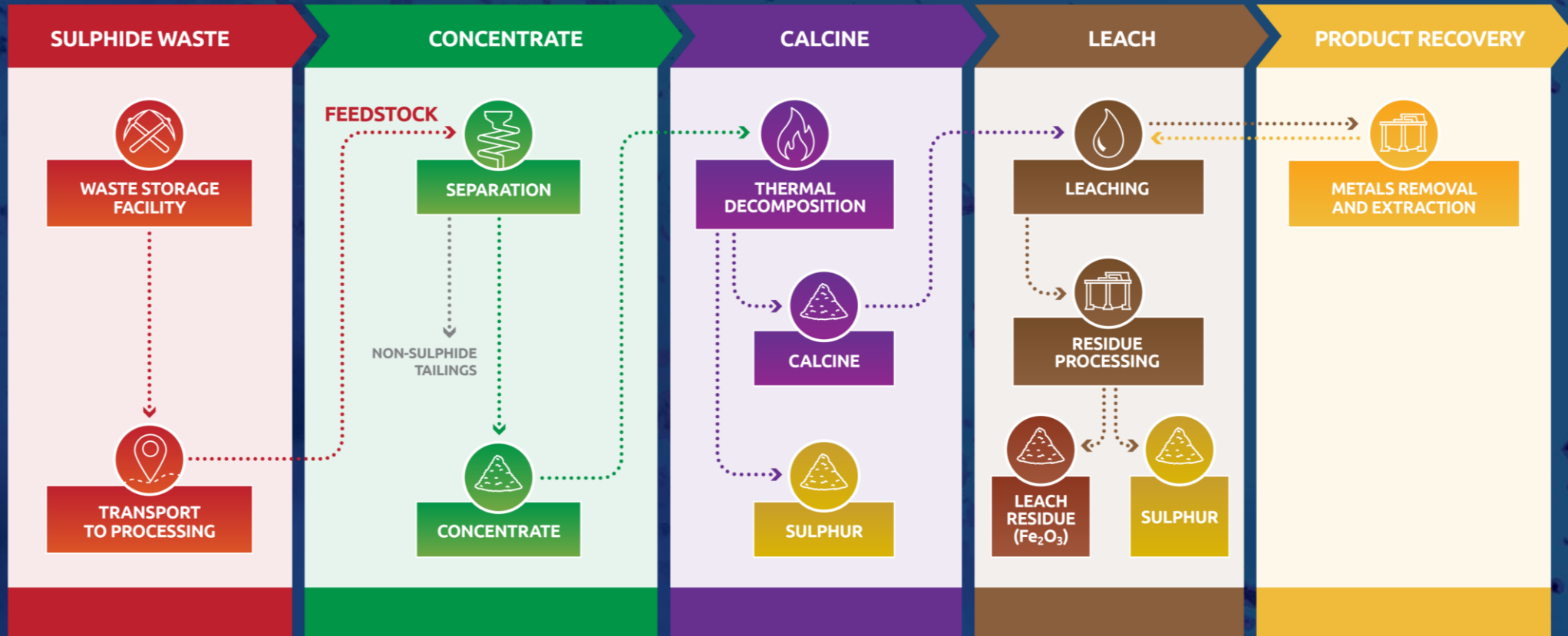
Global Mine Waste



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The Cobalt Blue flow sheet



Science of acid reduction

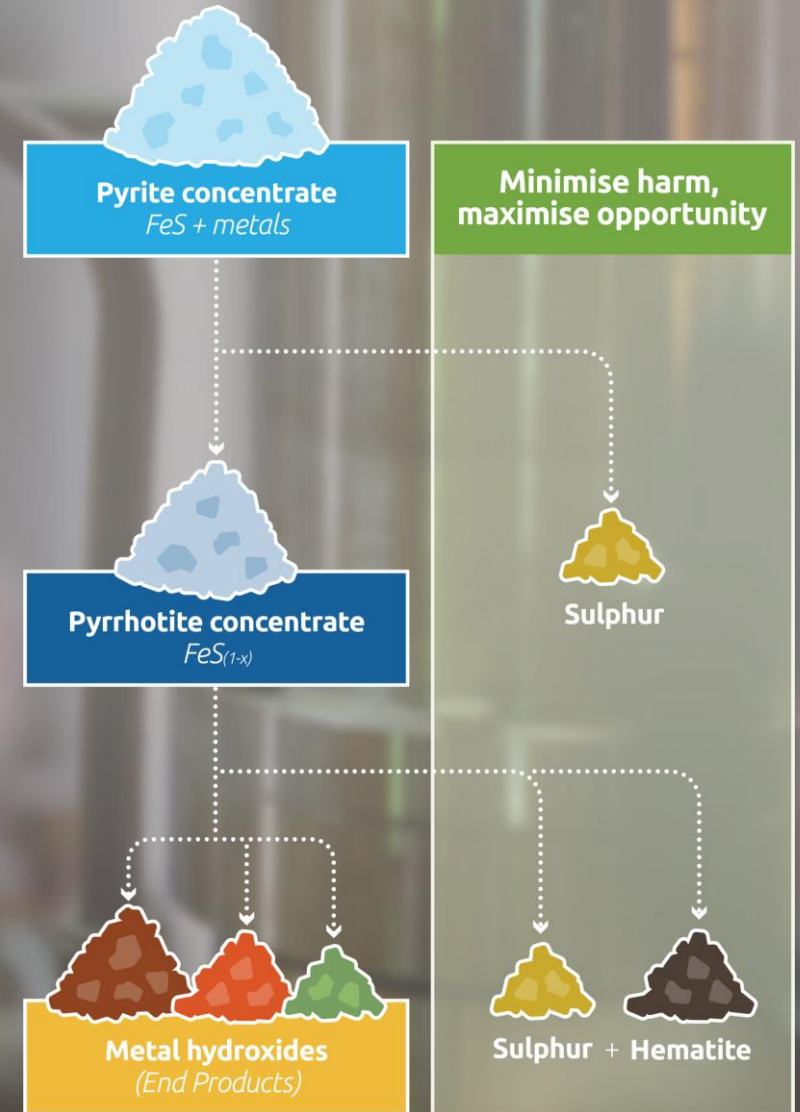
Cobalt Blue's patented process mitigates potential environmental harm and produces saleable elemental sulphur

Key step is pyrite (FeS) to pyrrhotite ($\text{FeS}_{(1-x)}$) conversion

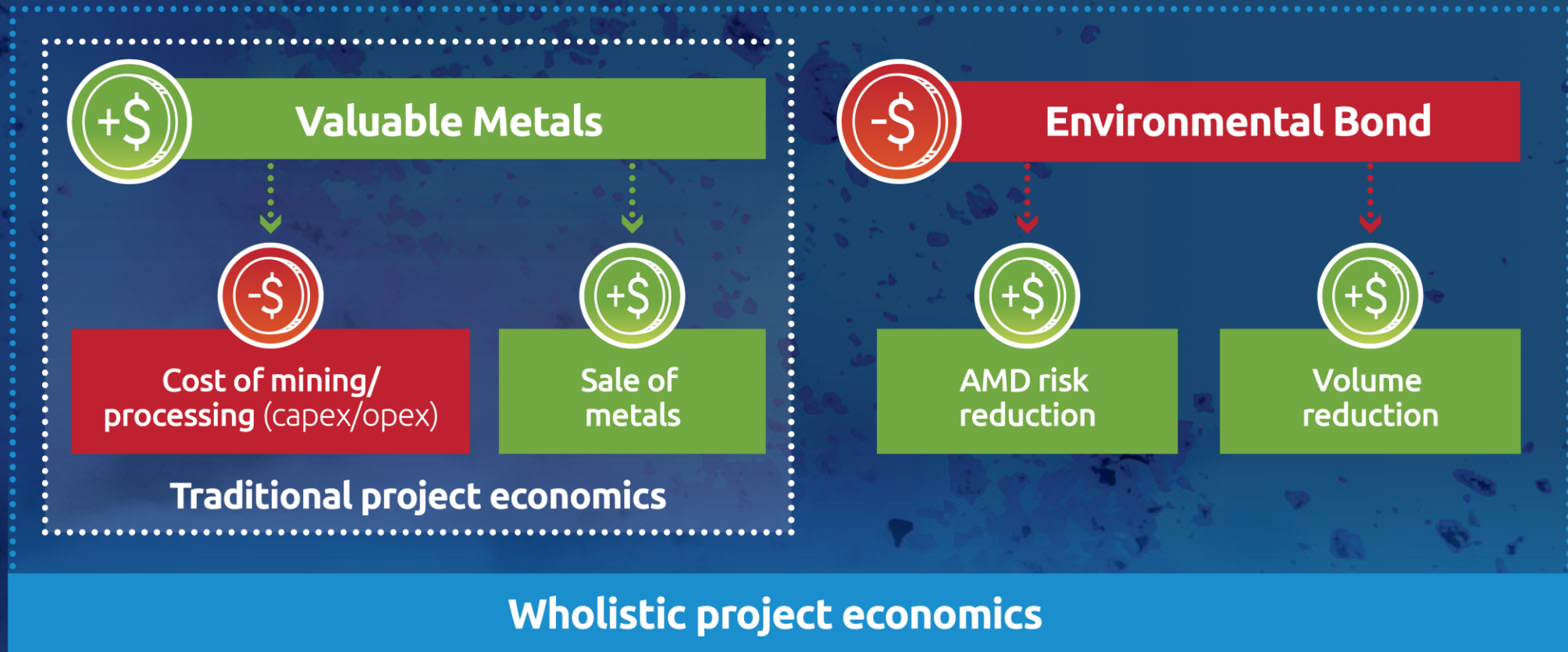
Sulphur is captured as an off-gas and cooled to form elemental sulphur.

Sulphur is also produced during leaching, Metals such as Co, Ni, Co, Ag and others are then extracted from the leach solution

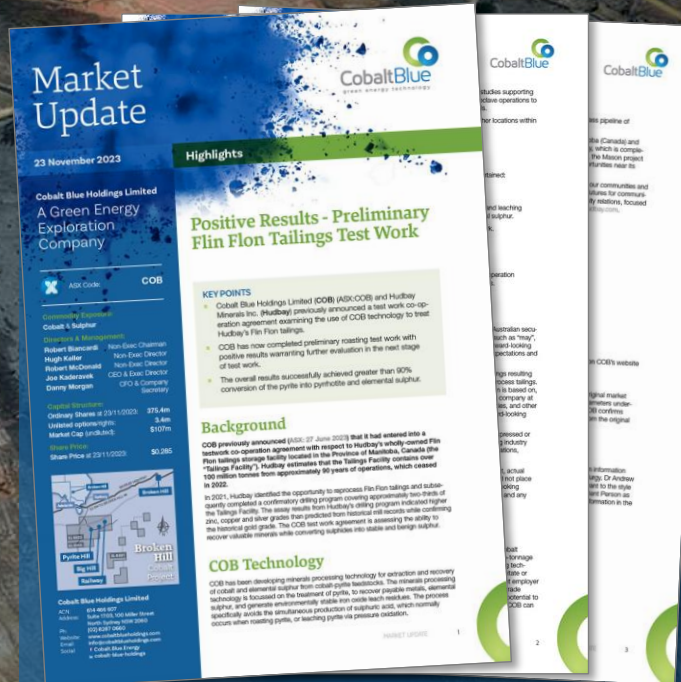
New waste is much lower PAF, or even NAF



The Case for Tailings Re-Processing



Case Study: Flin Flon tailings project



Estimated >100 million tonnes contained in tailings dam at Flin Flon. Tailings contains Zn, Cu, Ag and Au.

HUDBAY

Cobalt Blue and Hudbay Minerals collaborating to apply Cobalt Blue's processing technology to the Flin Flon tailings facility, Manitoba.

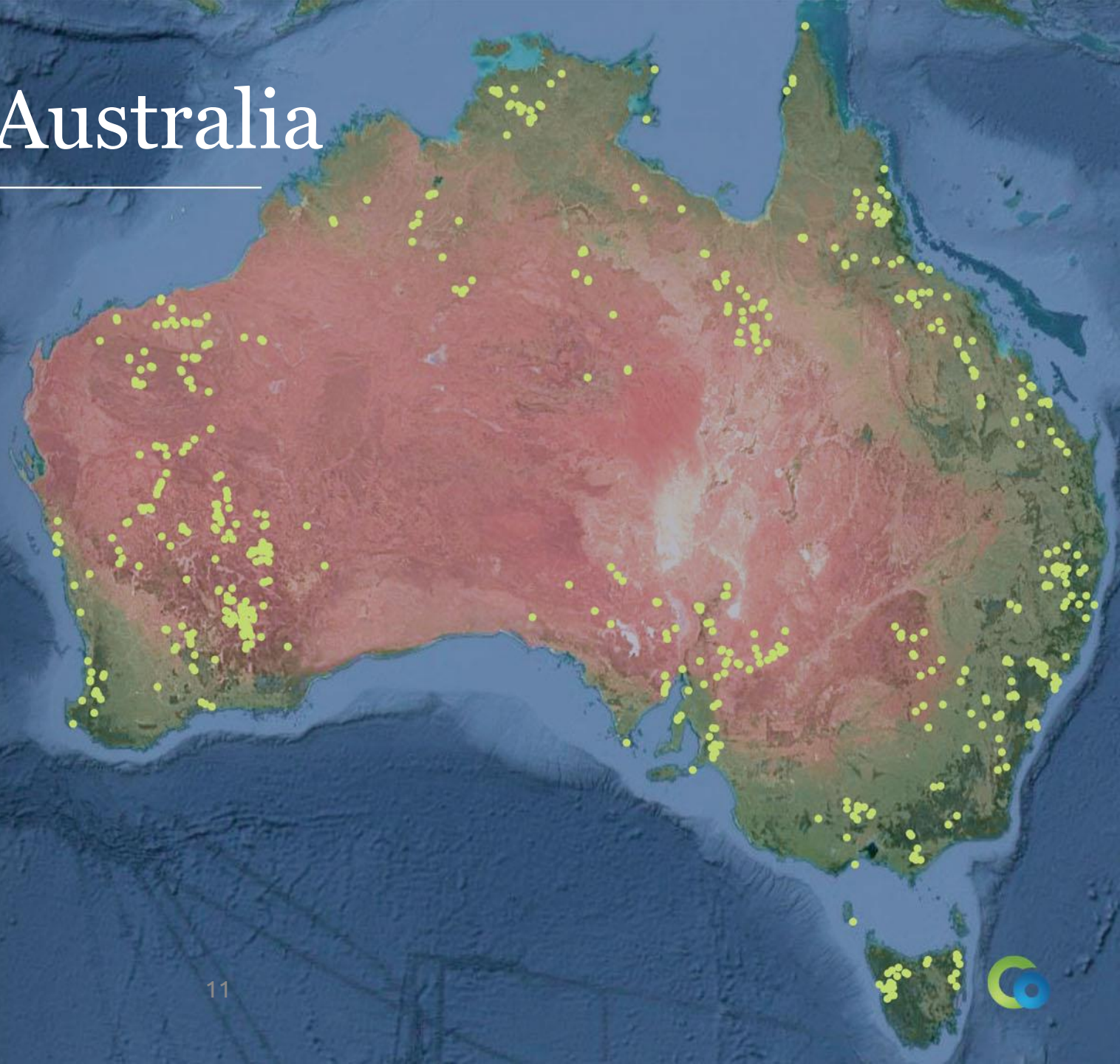
Testwork results to date have achieved >90% conversion of pyrite to pyrrhotite + sulphur.

An overall flowsheet is now being designed for the final step of testwork.

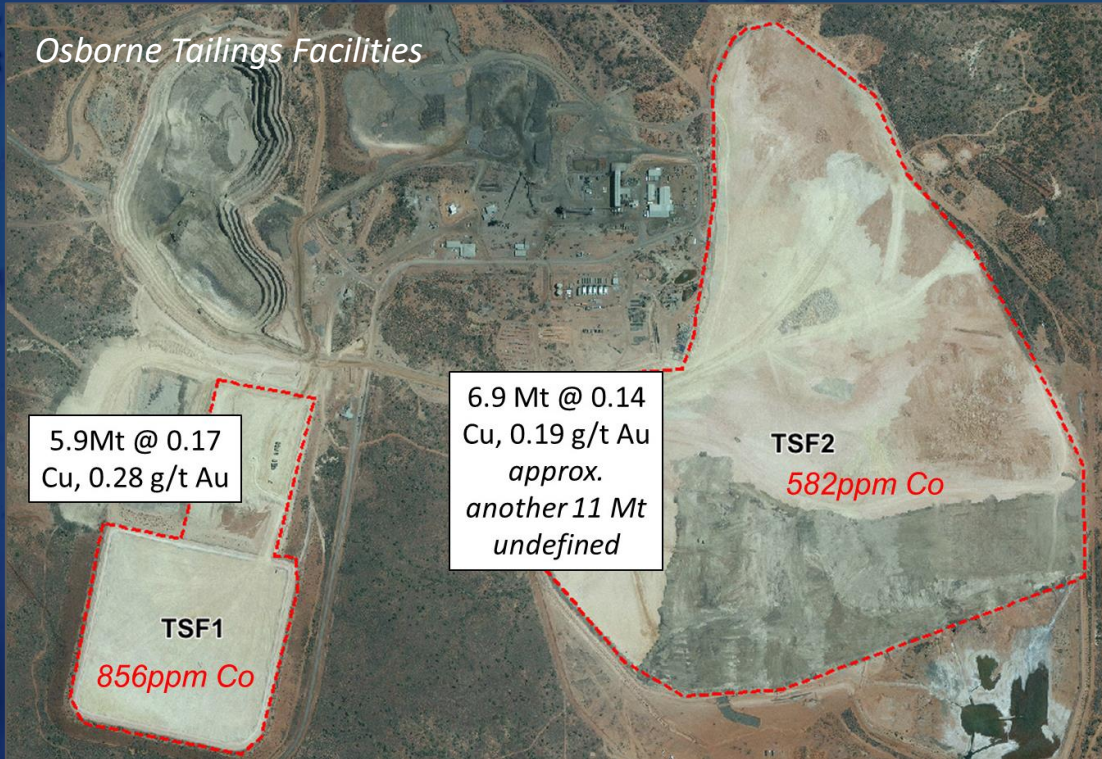


Mine Waste in Australia

- Long history of mining
- >3,500 active and inactive sites
- Most will have associated waste
- Potential for valuable raw materials in the waste



Case Study: Osborne Testwork



Two flowsheets tested:

Tails → float → POX

Tails → kiln → POX (COB Process)

	Float	POX	TOTAL recovery
Cobalt	90%	46%	41.4%
Copper	74%	98%	72.5%

	Kiln	POX	TOTAL recovery
Cobalt	99%	90%	89.1%
Copper	99%	90%	89.1%

Further recovery of cobalt and copper required from leach solutions.





ReMine+
Positive impact
from mine waste

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