Market Update

CobaltBlue

4 September 2025

Highlights

Cobalt Blue Holdings Limited

ASX Code: **COB**

Directors & Management:

Robert Biancardi	Non-Exec Chairman
Joe Kaderavek	Deputy Chairman
Hugh Keller	Non-Exec Director
Dr Andrew Tong	Chief Executive Officer
Kelvin Bramley	CFO & Company Secretary

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Broken Hill Technology Centre Update

Key Points

Kwinana Cobalt Refinery ('**KCR**' or '**the Refinery**'):

- Completion of 100-hour pilot campaign for cobalt solvent extraction.
- Production of cobalt sulphate meeting target specifications for Refinery partners.
- Production of cobalt metal as diversification for Refinery offtake agreements.
- Evaluation of black mass as additional feedstocks for KCR.

Broken Hill Cobalt Project ('**BHCP**'):

- Positioning BHCP for a cobalt market recovery - optimisation of kiln circuit targeting to reduced operating and capital costs.

Broken Hill Technology Centre Update

Cobalt Blue Holdings Limited ('**COB**' or '**Cobalt Blue**') is pleased to report strong progress at the Broken Hill Technology Centre ('**BHTC**' or '**the Centre**'). Recent achievements at the Centre directly advance COB's pathway to a Final Investment Decision on the Kwinana Cobalt Refinery by late 2025, reinforcing the commercial readiness of the project.

BHTC — at a Glance

- A$15M+ invested – BHTC scaled from pilot to full multi-feedstock refinery.
- Validated end-to-end process – from ore to cobalt sulphate and metal.
- Key technical milestones achieved – delivering key data for commercial process optimisation.
- Optimised Refinery flowsheet – trials with multiple feedstocks confirm performance and cost efficiency opportunities.
- Established innovation hub – driving R&D and external research projects to strengthen Australia's innovation ecosystem.

CEO Dr. Andrew Tong said: "It's exciting to see the Broken Hill Technology Centre grow from benchtop trials into a fully-fledged innovation hub with capabilities ranging from a) mineral concentration, leaching, and thermal treatment, b) metal separation through solvent extraction, ion-exchange and precipitation, and c) final products via crystallisation and electrowinning. The recent milestones accelerate progress toward a final investment decision for the Kwinana Cobalt Refinery, enhancing confidence in its commercial potential. We are also pleased that the Centre attracts external R&D projects, strengthening Australia's innovation ecosystem and developing the next generation of geoscientists – positioning COB at the forefront of the global critical minerals sector."

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The Broken Hill Technology Centre

Since 2021, COB has invested over A$15 million in BHTC (previously referred to as the 'Demonstration Plant'). Originally established to validate an end-to-end flowsheet for the BHCP – from mining through to production of cobalt sulphate, cobalt metal and elemental sulphur – the facility's pilot and demonstration campaigns successfully generated the data underpinning BHCP feasibility studies.

More recently, the Centre has focused on optimising the Refinery production flowsheet using a range of feedstocks, including cobalt hydroxide, cobalt-nickel sulphides, and battery black mass. These programs have delivered critical technological milestones, further de-risking the Refinery and enhancing commercial readiness.

At the same time, BHTC serves as a platform for innovation, advancing R&D and building new commercial opportunities through industry and academic collaborations.

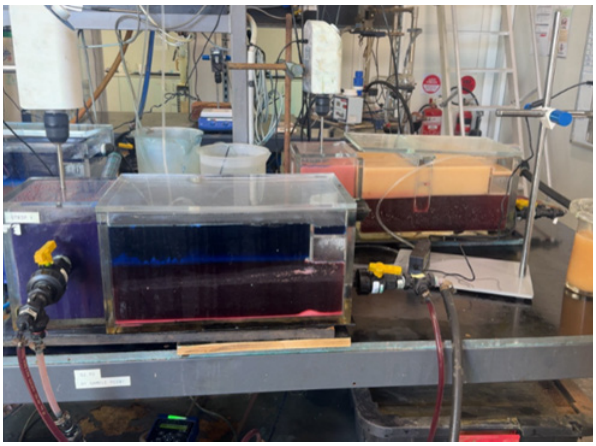
Recent achievements include:

- Successful 100-hour pilot campaign for cobalt solvent extraction.
- Production of cobalt sulphate meeting target specifications.
- First cobalt metal production, expanding offtake flexibility for the Refinery.
- Black mass evaluation as a potential additional feedstock for KCR.
- Optimised kiln circuit design for BHCP, targeting capital cost reductions.
- Collaborative projects with the University of Queensland's Sustainable Minerals Institute and the ARC Training Centre in Critical Resources.

100-hour Solvent Extraction Pilot Completed

Purified leach solution was processed through the cobalt solvent extraction circuit in a 100-hour campaign, demonstrating the effective separation of cobalt from nickel, manganese, magnesium, and calcium. The plant achieved steady operations at a rate of 1.5 kg/hr cobalt. Significant effort has been spent to fine-tune the solvent extraction flowsheet to selectively load cobalt. Operational data will be used from this campaign to finalise engineering design for the proposed KCR.

Figure 1 - The BHTC's cobalt solvent extraction circuit.



Cobalt Sulphate Produced to Specification

Refinements to the solvent extraction flowsheet have enabled production of cobalt sulphate crystals meeting target offtake specifications, as outlined in COB's agreement with Iwatani.

Ongoing sample production will further demonstrate operational reliability and flowsheet robustness, strengthening confidence in commercial readiness.

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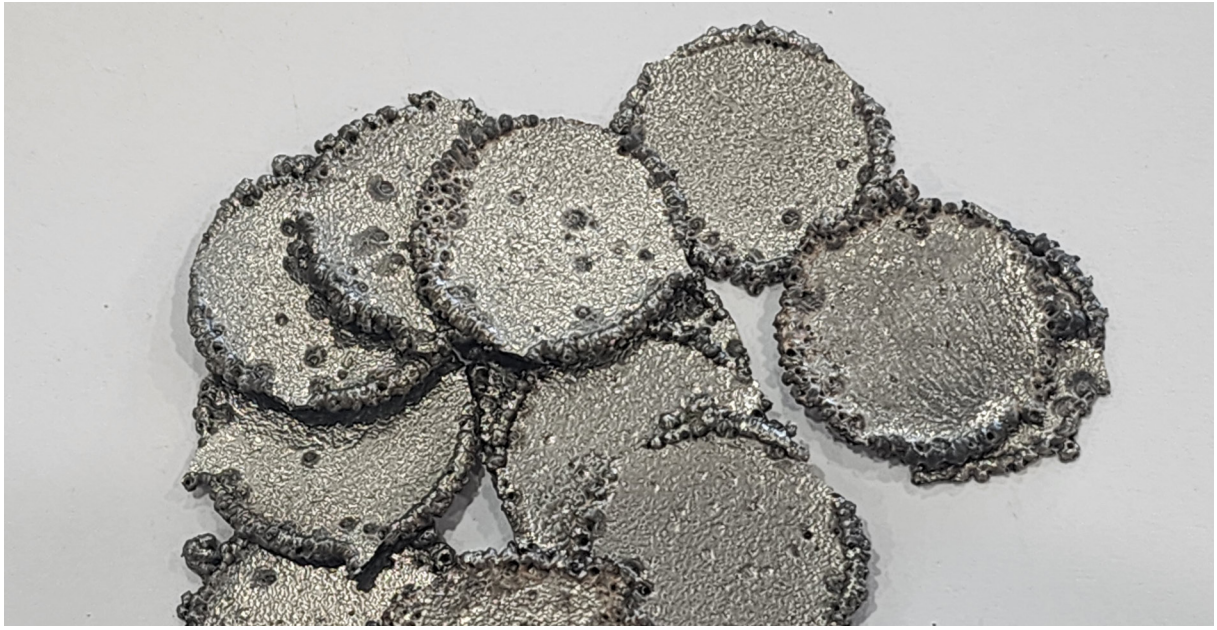
High-Purity Cobalt Metal Produced

With rising global demand for cobalt metal – highlighted by the recent US Department of Defense decision to purchase 7,500 t for strategic stockpiles – COB is advancing cobalt metal production as a diversification strategy alongside cobalt sulphate.

Testwork has successfully demonstrated the production of high-purity cobalt metal from cobalt sulphate liquors. Importantly, this option requires no change to upstream purification, differing only in the final recovery step, and offers additional flexibility for the proposed Kwinana Cobalt Refinery's offtakers.

Figure 2 - Cobalt metal rounds recently produced at the BHTC.

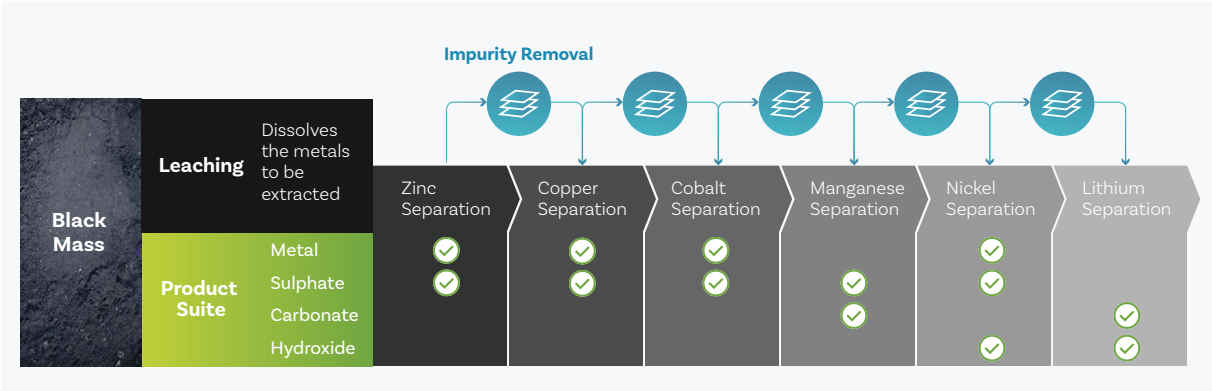


Battery Black Mass Under Evaluation as Feedstock

COB is advancing testwork to confirm the Refinery's ability to process battery black mass, a growing feedstock stream from recycled batteries and e-waste.

Samples have been received from two Australian producers, with leaching studies underway targeting cobalt, nickel and manganese – metals already central to the Refinery's flowsheet. Lithium recovery options will be evaluated in the next phase, highlighting the potential to expand into broader battery material recycling.

Figure 2 - COB's black mass flowsheet.



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COB is in advanced commercial discussions with Australian operators to secure a regular black mass supply. Near-term processing at the BHTC provides an opportunity to de-risk the Kwinana Refinery, generate early revenue, and showcase COB's role in building Australia's circular economy for critical minerals (see ASX Announcement dated 17 December, '**Kwinana Refinery Update + Black Mass Agreement**').

Figure 3 - Black mass samples from two separate sources processed at the BHTC.

What is Black Mass?

Black mass is an intermediate product derived from recycling lithium-ion batteries (LiBs) from consumer electronics, mobile devices, and electric vehicles. Battery packs are dismantled, and the cells are mechanically processed—crushed and separated to remove solvents and larger metallic and polymeric particles—leaving a black mass primarily composed of cathode and anode powders containing valuable metals.

Black mass has now become a traded commodity, with payability determined by metal content and prices quoted by major reporting agencies such as Fastmarkets and Platts. From a metallurgical perspective, it is an ideal feedstock due to its high-grade composition and amenability to leaching under atmospheric conditions. From a sustainability standpoint, processing black mass is a critical step in developing a circular economy.

Currently, only a small fraction of lithium-ion battery (LiB) waste is recycled in Australia. COB's partner Ecobatt estimate that the national recycling rate for household batteries is just 10%—one of the lowest rates in the OECD. Most batteries end up in potentially hazardous stockpiles or in landfill. By advancing downstream battery reprocessing, COB is helping to build a self-sustaining domestic recycling market. Recovering critical minerals from recycled batteries will not only strengthen supply chain resilience but also reduce reliance on traditional mining.

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Kwinana Cobalt Refinery

Status – on track for FID by end-2025

COB is progressing toward a year-end final investment decision, driven by a series of key milestones, including:

- ✓ Operating Permit application submitted
- ✓ Binding, pre-FID consortium Deed with Iwatani (ASX announcement dated 11 April 2025)
- ✓ Secured feedstock contract with Glencore from DRC (ASX announcement dated 29 May 2025)
- ✓ Tetra Tech Coffey appointed as engineering partner (ASX announcement dated 8 July 2024)

In parallel, COB continues to advance the remaining technical, regulatory, and commercial work required to finalise the FID, ensuring KCR is fully de-risked and investment-ready. These include:

- Continued discussions with prospective offtakers
- Continued testwork and flowsheet optimisation
- Financial support

Why the Kwinana Cobalt Refinery Matters: De-risking Mine Development

Australia and its like-minded critical minerals partners currently deliver just 6% of global cobalt supply, yet are projected to meet 60% of demand by 2030. With cobalt supply chains heavily concentrated in China, demand is rising across the US, Canada, Korea, Japan, the UK and EU for secure, diversified sources.

COB is positioning to fill this gap by establishing a mid-stream cobalt refinery capable of processing multiple feedstocks. KCR is designed as a low-capex, A$120 million project (estimate, including estimated working capital, interest and financing), delivering:

- Battery-grade cobalt sulphate for EV supply chains.
- High-purity cobalt metal for industrial and defence applications.

KCR directly supports ***Australia's Critical Minerals Strategy*** and stands as a cornerstone project under the ***Future Made in Australia*** agenda, strengthening sovereign supply chain resilience.

Broken Hill Cobalt Project

Poised to become a generational operation at the heart of Australia's rise as a critical minerals superpower

In July 2025, the BHCP was granted a three-year extension to its Major Project Status (ASX announcement dated 3 July 2025). This designation enables additional Commonwealth Government regulatory support for projects of national significance, recognising their contribution to strategic priorities, economic growth, employment, and regional development.

The recognition of BHCP as a project of national significance strengthens COB's position in ongoing investment discussions, both with international financiers and domestic investors. It also reinforces the partnership with Iwatani, highlighting BHCP as a national priority for the Australian government.

Positioning BHCP for a Cobalt Market Recovery

Optimisation of Kiln Circuit Targeting Reduced Operating and Capital Costs

A core step in the BHCP flowsheet is the thermal decomposition of pyrite into pyrrhotite and elemental sulphur. COB had previously proven this process using a rotary kiln.

In recent weeks, a new vertical tube kiln was built and commissioned to evaluate alternative configurations aimed at reducing kiln size, plant footprint, and overall capital costs.

The trials tested innovative heating elements that overcame key technical challenges in power supply, control, and design. The system maintained steady heat input, enabling COB to capture valuable new data on heat transfer rates and mineral conversion kinetics.

The campaign successfully produced pyrrhotite and high-purity crystalline sulphur, confirming both the technical robustness of the process and opportunities to further optimise project economics.

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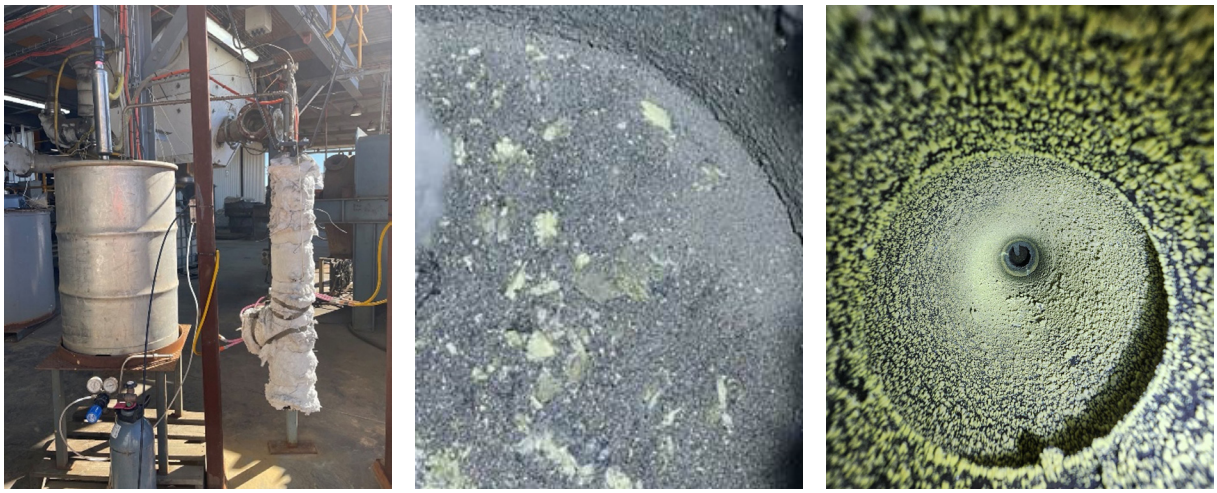
Figure 4 - (L-R) Vertical kiln prototypes, pyrrhotite product after pyrite conversion and sulphur collection in condenser.



Project with the Sustainable Minerals Institute from the University of Queensland and ARC Training Centre in Critical Resources

As part of our partnership with the ARC Training Centre in Critical Resources for the Future ('**CCRF**'), COB recently hosted a team from the Sustainable Minerals Institute ('**SMI**') from the University of Queensland ('**UQ**').

The COB/SMI project focuses on the optimisation and development of the thermal decomposition of pyrite. This unit operation is at the heart of the COB patented flowsheet for the BHCP. As part of COB's successful scale-up trials at the BHTC through 2021-2024, we processed over 200 tonnes of concentrate using a rotary kiln.

Further work is currently underway to explore lower reaction temperatures to reduce energy consumption and to investigate various kiln designs that improve materials handling and minimise ancillary equipment requirements. A vertical kiln prototype is being tested, to evaluate heat transfer and gas handling (see previous section).

The partnership with the UQ team includes dedicated researchers who build fundamental knowledge of the underlying chemical process, leading to efficiency gains for COB's projects.

Figure 5 - The SMI Team and BHTC Manager Adam Randall following collaboration days at the Centre.

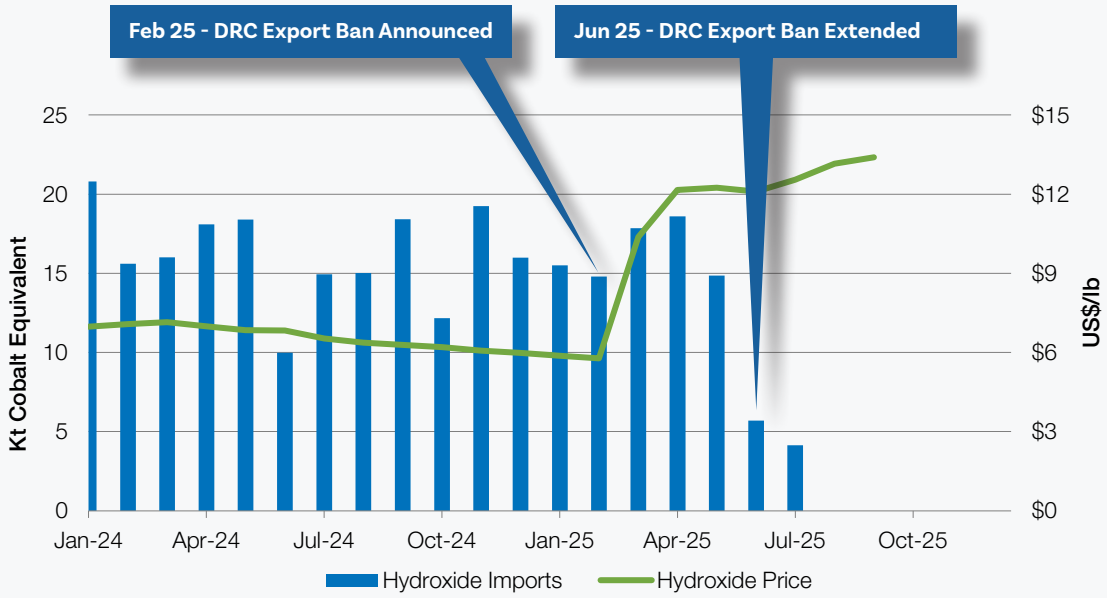
COB has previously evaluated the application of the technology for reprocessing mine tailings (e.g. Hudbay's Flin Flon project) and new mine opportunities. SMI-UQ's **MIWATCH** team has accessed over 80 sites across Australia through work led by Anita Parbhakar-Fox, where they have characterised a range of mine waste to identify new resources of critical metals. Building on this, the team are now examining tailings retreatment opportunities at prospective sites.

Cobalt Blue looks forward to further collaboration with both SMI and CCRF and are always open to ideas and projects that enhance Australia's capability in the resource sector skills and technology.

Six Months On: DRC Cobalt Export Ban Hits Supply

It's been six months since the DRC suspended cobalt exports, and the impact is finally showing in the data. China's July imports of cobalt intermediates collapsed to just 4,000 tonnes – well below the usual 15,000–20,000 tonnes per month.

Figure 6 - China's monthly cobalt intermediate imports.

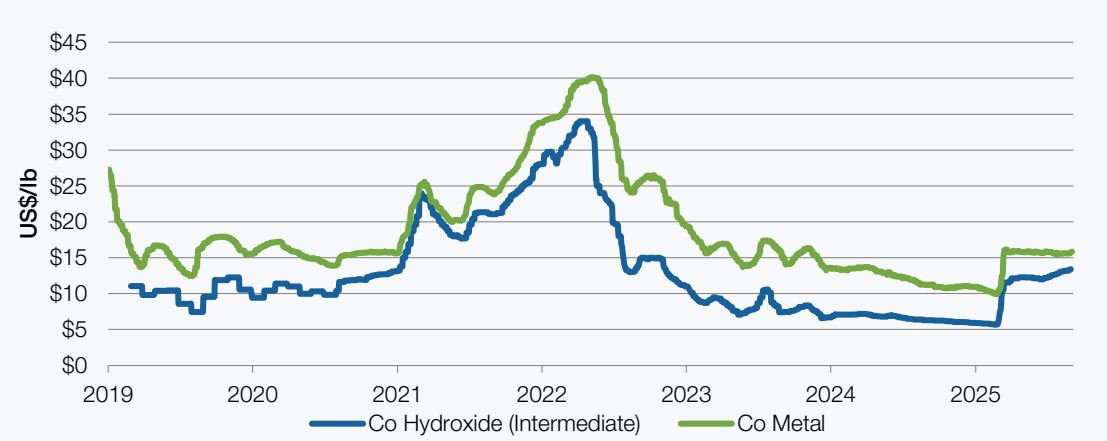


Source: China General Administration of Customs, Fastmarkets and Cobalt Blue Holdings.

Why the delay? The cobalt supply chain from the DRC to China runs 4–6 months, meaning inventories cushioned the shock – until now.

Cobalt metal and hydroxide (intermediate) prices spiked 60% immediately after the ban was announced. The metal price has since plateaued, and while the hydroxide price has shown some signs of life in the couple of months, it still has hardly moved.

Figure 7 - Cobalt metal and hydroxide prices.



Source: Fastmarkets

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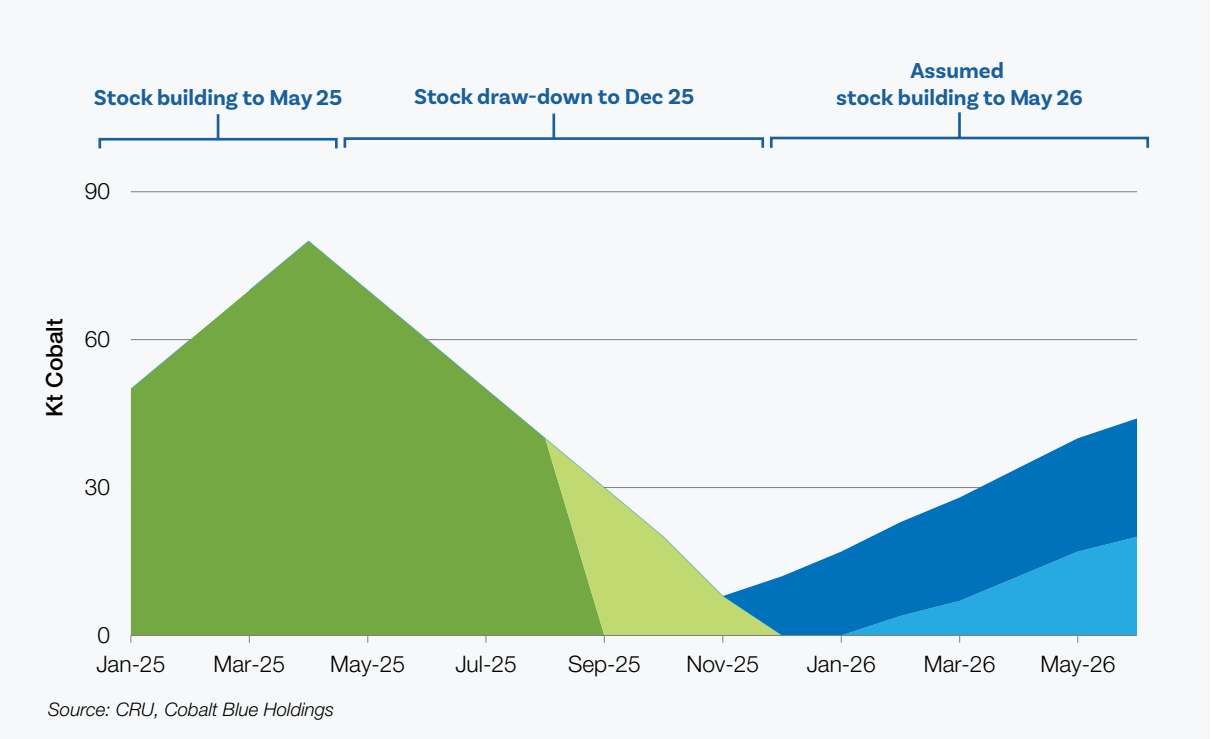
Trading volumes in July and August tend to average much lower than normal in the northern hemisphere summer months. However, COB suspects that as seasonality eases, market participants will be faced with much lower inventory across the supply chain and would expect a much more competitive pricing environment.

Figure 8 - Global cobalt intermediate and hydroxide inventories.



The next market milestone to look out for is an update from the DRC government in September on whether they will extend the export ban. Given the lack of price support, an extension could be expected. What price is the government looking for? According to Bloomberg, Gecamines (state-controlled miner and trader) Chairman Guy-Robert Lukama, Congo doesn't want a return to peaks above $40 a pound — experienced in 2018 and 2022 — but *"it was our duty as a country to stabilize the price."*

Commercial Manager Joel Crane talked with Proactive about these cobalt market trends (see recording here).

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Cobalt Blue Background

Cobalt Blue Holdings Limited is a minerals processing and mining company focused on **developing midstream processing capabilities** in Australia **to diversify supply chains** with like-minded countries. Key assets:

- **Kwinana Cobalt Refinery** ('**KCR**'): Australia's first dedicated cobalt refinery to produce high-purity cobalt sulphate for the lithium-ion industry and high-grade cobalt metal for defence and industry. Near-term development of KCR de-risks domestic critical mineral projects by providing a refining facility capable of treating a variety of feedstocks
- **Broken Hill Cobalt Project** ('**BHCP**'): One of the world's largest, undeveloped cobalt resources, BHCP is set to become a generational operation at the heart of Australia's rise as a critical minerals superpower. Recently granted a three-year extension to Major Project Status, the Australian Federal government recognises BHCP as nationally significant.
- **Broken Hill Technology Centre** ('**BHTC**'): Since 2021, COB has invested over A$15 million in BHTC to test and validate the complete flowsheet for BHCP – from mining through to production of cobalt sulphate, cobalt metal and elemental sulphur. It has also delivered key technological milestones that further strengthen the case for developing KCR.
- **Halls Creek Project**: Optionality for diversified commodity exposure via a low-cost copper-zinc-silver project with near-term exploration planned to test resource growth uplift.

As announced on 18 February 2025, the Company intends to seek shareholder approval to change its name to Core Blue Minerals Limited.

Forward Looking Statements

This announcement contains "forward-looking statements". All statements other than those of historical facts included in this announcement are forward-looking statements. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. However, forward-looking statements are subject to risks, uncertainties, and other factors, which could cause actual results to differ materially from future results expressed, projected or implied by such forward-looking statements. Such risks include but are not limited to cobalt metal price volatility, timely completion of project milestones, funding availability, and government and other third-party approvals. The Company is not obligated to release any revisions to any "forward-looking statement" publicly. To the maximum extent permitted by law, COB and its respective advisers, affiliates, related bodies corporate, directors, officers, partners and employees expressly exclude and disclaim all responsibility and liability, including, without limitation, for negligence or in respect of any expenses, losses, damages or costs incurred by any person as a result of their reliance on this ASX announcement and the information in this ASX announcement being inaccurate or incomplete in any way for any reason, whether by way of negligence or otherwise.

This announcement was authorised for release to the ASX by the board of Cobalt Blue Holdings Limited.

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