Cobalt market outlook: Five key factors

Fastmarkets experts share cobalt forecasts, data and interactive price charts to demonstrate the volatile battery

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materials landscape and make some key predictions about the future of the cobalt market

By the Fastmarkets team

to watch

Battery materials Electric vehicles Cobalt Supply chains Recycling

cobalt comes from the Democratic Republic of Congo (DRC) and over 70% of cobalt processing occurs in China.

From continued growth in demand and market share for electric vehicles (EVs) and the increased reliance

on energy storage systems, cobalt is key in the global transformation to new energy sources. But there is

a lack of diversity in the supply chain for battery manufacturers and automakers. Roughly 70% of mined

Logistics and shipping disruptions are still a key issue and high prices for cobalt remain despite a bearish sentiment in the second half of 2022. In response to supply chain disruption, high battery material prices and the desire to move to a circular economy, there is an even greater need for the recycling of cobalt for EVs. We take a look at some of the key factors at play in the cobalt market over the next ten years.

1. EV adoption growth will continue to drive cobalt

demand

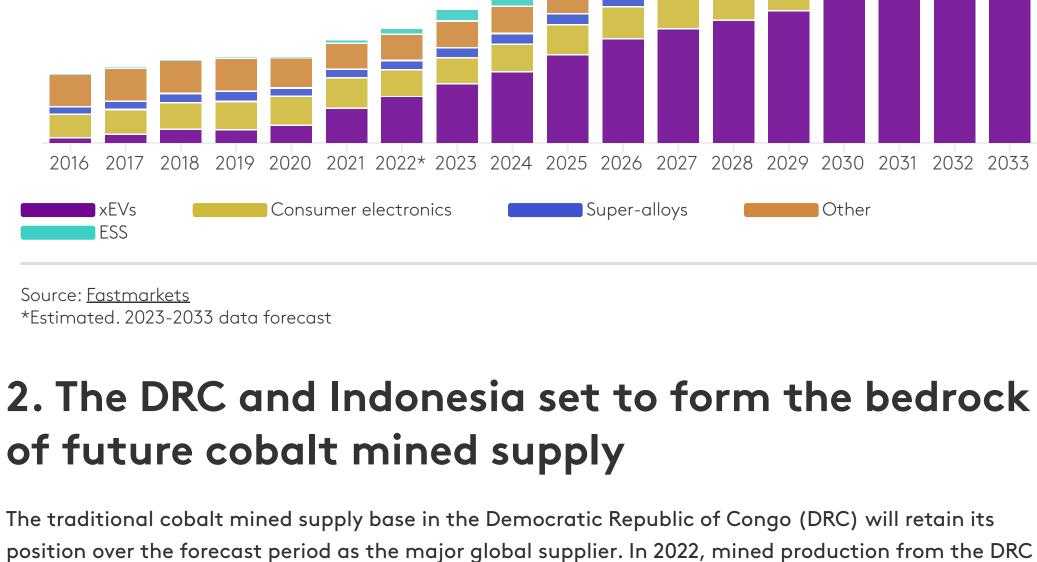
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cobalt in 2021. There have been a number of headwinds discussed in the future usage of cobalt within the lithium-ion battery industry due to ESG concerns and volatile pricing. In 2022, the growth in EV sales using lithium iron phosphate (LFP) batteries saw the chemistry represent 30% of total EVs in the global market.

Cobalt demand from fully electric vehicles (xEVs) became the largest consuming end-use sector for

Despite this growth, cobalt demand from the EV sector grew at 33% year-on-year in 2022. Over the forecast period, xEV cobalt demand is expected to grow at a compound annual growth rate (CAGR) of 14% driven by significant unit sales growth, as the preference for higher energy density, longer-range nickel manganese cobalt (NMC) EVs in Western markets remains. For now, we do not foresee cobalt being engineered out of the lithium-ion and EV space.

Cobalt demand from xEVs became the largest consuming end-use sector for cobalt in 2021 Thousand tonnes cobalt



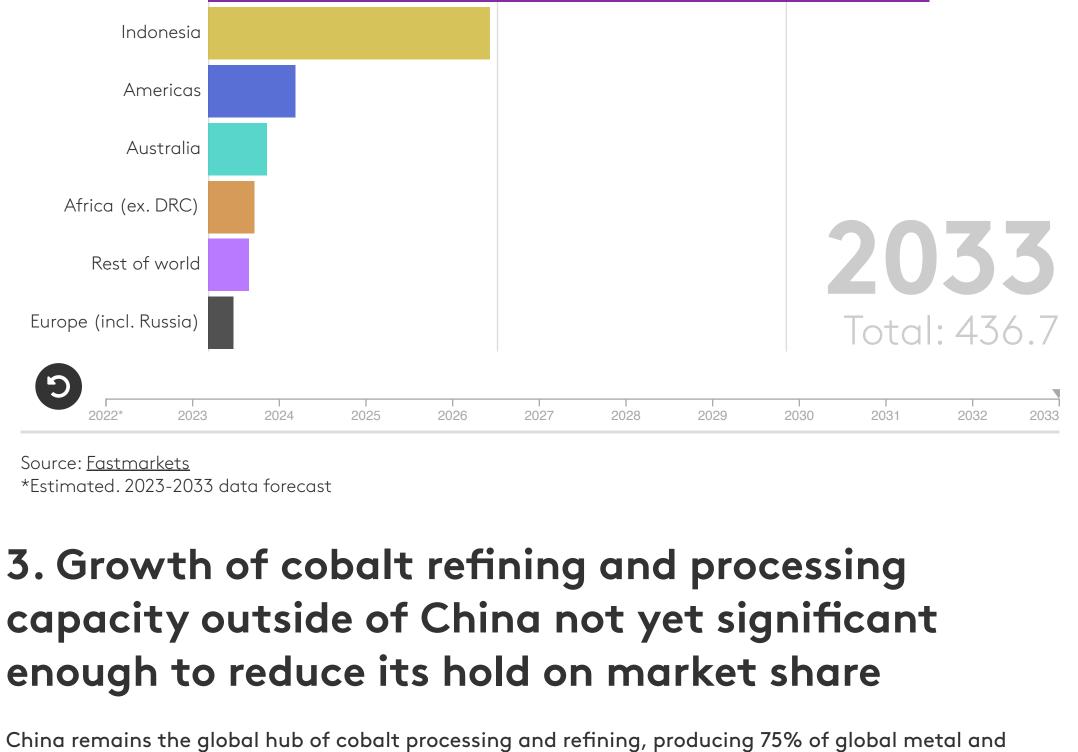
growth in the next ten years. The successful commissioning and ramp up of HPAL units in the Southeast Asian country will see its cobalt footprint grow from 4% in 2022 to 22% by 2033. By the end of our forecast period, the DRC and Indonesia will represent 80% of total global cobalt production.

represented 74% of the global total. Major brownfield expansions and greenfield developments in the next

three years will further cement this position in the short term. As well as developments in the traditional

African copper-cobalt belt, Indonesian production as a by-product of nickel mining will see significant

Indonesia production as a by-product of nickel mining will see significant growth in the next ten years DRC and Indonesia will represent 80% of total global cobalt production by end of forecast Thousand tonnes cobalt 200 100 DRC



China remains the global hub of cobalt processing and refining, producing 75% of global metal and cobalt salt in 2022 Thousand tonnes cobalt

increase dramatically to see market share shift away from the traditional processing base.

cobalt salt in 2022. Despite efforts through legislation and material sourcing requirements,

to see China retain its position as the global supplier of refined cobalt products.

announcements for processing projects outside of China remain limited in comparison. Over the forecast

period, significant additions in China compared to planned refining capacity in the rest of the world is set

Incentives and continued efforts to diversify and localize supply chains around the world will need to



The recent passing of the European Commission's Critical Raw Materials Act is targeting issues

and low cobalt prices combined with inflationary pressures continue to squeeze the economics of

Western projects.

industry.

2022*

2024

2026

surrounding permitting and lengthy development stages in the region that has hindered growth in the

European cobalt footprint. For now, getting greenfield sites approved and running remains a challenge,

Over the forecast period, secondary supply through scrap and end-of-life battery recycling is expected to

reducing the reliance of sourcing material from the traditional base in the DRC and growing Indonesian

play a significant role in both regions as they look to develop circular economies for battery metals,

Gap between mined supply and cobalt demand from xEVs forecast to

2032

2030

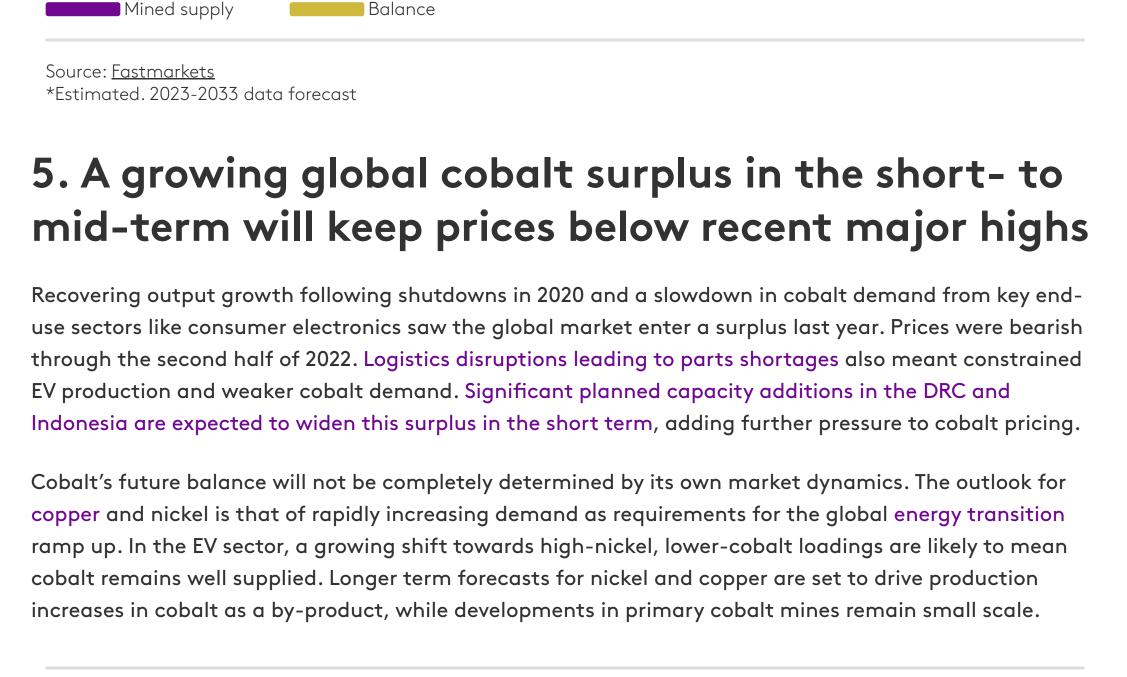
2028

below major highs seen in recent years

Secondary supply through scrap and end-of-life battery recycling is expected to play a

grow in European and US cobalt markets

significant role in both regions Thousand tonnes cobalt **United States European Union**



A growing global cobalt surplus in the short- to mid-term will keep prices

2022*

2024

2026

2030

2028

2032

2022* 2023 2024 2026 2027 2028 2029 2031 2032 2025 2030 2033 ■ Price foreacst (\$/lb) Balance (thousand tonnes cobalt) Source: Fastmarkets *Estimated. 2023-2033 data forecast Want more insights and forecasts for the cobalt

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Tesla's \$1 billion project aims at increasing the China's lepidolite production on a lithium carmaker efforts of producing battery-grade carbonate equivalent (LCE) basis accounted for lithium hydroxide domestically in the United 12.2% of global lithium production in 2022 and is States to serve the growing North American eforecast to account for more than 15% of global mobility market, the company said lithium production in 2032

Tesla starts construction of US

Chinese lepidolite integral to

global lithium supply

May 15, 2023 · By: Zihao Li

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Watercycle, RSBruce recover

graphite from black mass

metal recovery specialist RSBruce Metals &

Machinery have extracted commercial-grade

lithium and almost 100% pure graphite from

spent electric vehicle (EV) batteries, they

announced on May 2

commercial-grade lithium and

UK-based Watercycle Technologies and precious

Glencore, Li-Cycle eye boost in recycled battery metal supply with major Italy plant Glencore and major battery recycler Li-Cycle intend to build a hub in Italy which was expected

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lithium hydroxide refinery

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