



Data, Insight,
Strategy &
Communities



Lead market to remain tight in North America despite slowing LAB demand due to slow production

Final Report



A foreword from BCI

An introduction

The battery industry is essential to the economic growth, technological advancement, and security of North America. For over 125 years, US-based battery companies have delivered dependable energy storage solutions that support nearly every sector of modern life – from transportation to industrial logistics to energy infrastructure.

Developed exclusively through a partnership between CRU and the Battery Council International (BCI), this report combines decades of metals market intelligence at CRU with proprietary data on battery sales and manufacturing from BCI.

With more than 80 years of sales statistics and annual market forecasts provided directly by its member companies, BCI is the exclusive provider of real-world data for the North American battery industry. This trusted BCI data is partnered with CRU's best-in-class analysis and insights to offer the most comprehensive and reliable report available on lead battery market trends.

Except as expressly stated, CRU is solely responsible for all market pricing or supply estimates provided herein based on publicly available data and proprietary market analysis. Neither BCI or any third-party has any involvement in determining the forward-looking analyses.

About Battery Council International

Battery Council International (BCI) is the leading trade association representing the global battery industry and is the premier authority on energy storage solutions. Founded in 1924, BCI advocates and educates on behalf of battery manufacturers and recyclers, marketers and retailers, suppliers of raw materials and equipment, and battery distributors. With a unified voice, BCI conveys an industry-wide commitment to sustainability, safety and science. The organisation unites its 140+ members to successfully communicate and protect through education, science and advocacy efforts the most successful circular economy on the planet.

For more information, visit www.batterycouncil.org.

About CRU

Since our inception back in 1969, we have consistently prioritised primary research and robust methodologies; and have teams of experts around the world, including teams on the ground in China. With more than 450 experts across 14 locations worldwide, we partner with companies to successfully navigate the complexities of continuously changing commodity markets.

In a changing world where industries and companies need to constantly adapt, CRU is committed to propelling your success forward. Whether it's deciphering market trends or shaping sustainable strategies, CRU is here to empower you every step of the way.

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MACROECONOMIC OVERVIEW

Conflict in the Middle East raises stagflation risk

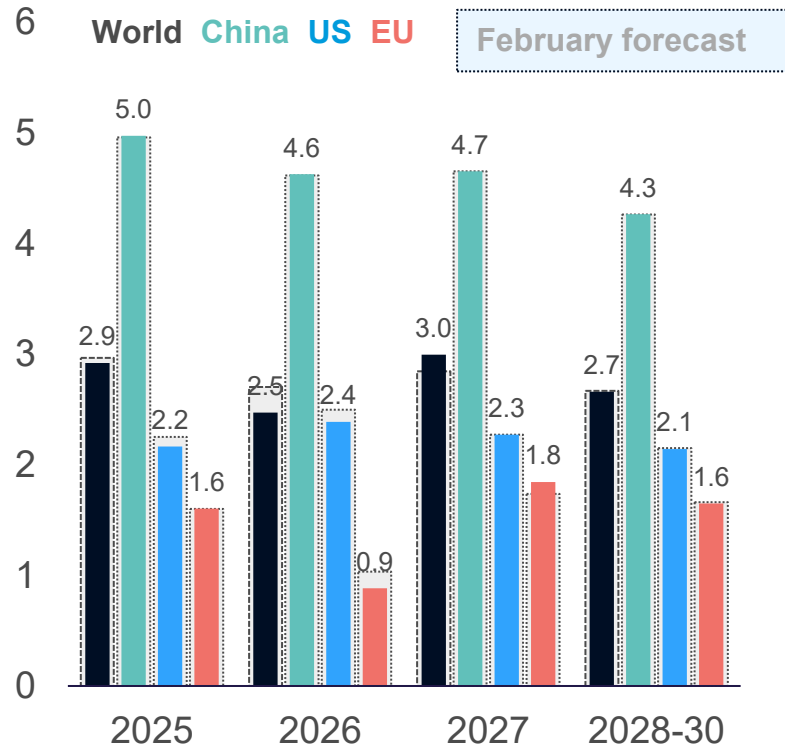
Geopolitical conflicts in the Middle East, most notably the disruption to the flow of energy commodities through the Straits of Hormuz, pose significant risks to the world economy. The beginning of 2026 has already been marked by a modest downgrade to forecasts and more revisions may be likely without urgent de-escalation.



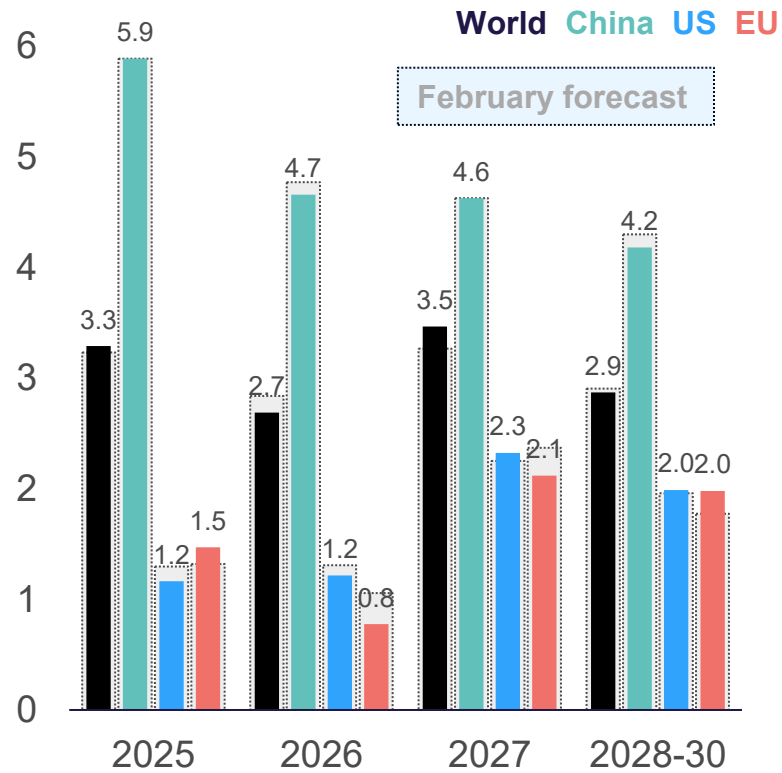
Global growth forecasts lowered, with a high chance of further downgrades

World GDP and IP growth downgraded for 2026, with a recovery in 2027

GDP growth, %



Growth in Industrial Production, %



Potential for wider damage than the 2022 energy shock

The conflict in the Middle East has already had a significant impact on energy markets, as well as fertilizers and aluminium. This is beginning to filter through to the wider world economy, with disruptions in Asian markets already appearing and sentiment taking a knock in the US and Europe.

The situation remains fluid; although the US appears to be seeking deescalation, it is simultaneously building up forces which could be used to escalate despite the announcement of a fragile ceasefire. Our forecasts have been prepared on the assumption that the duration of disruption is relatively brief. For now, we have modestly downgraded growth for 2026, with a recovery in 2027. However, if the situation does not de-escalate soon, we will downgrade the outlook further.

Of material interest to battery markets, global light vehicle production is expected to grow only 1.2% in 2026, after 3% growth in 2025.

DATA: CRU, Oxford Economics.

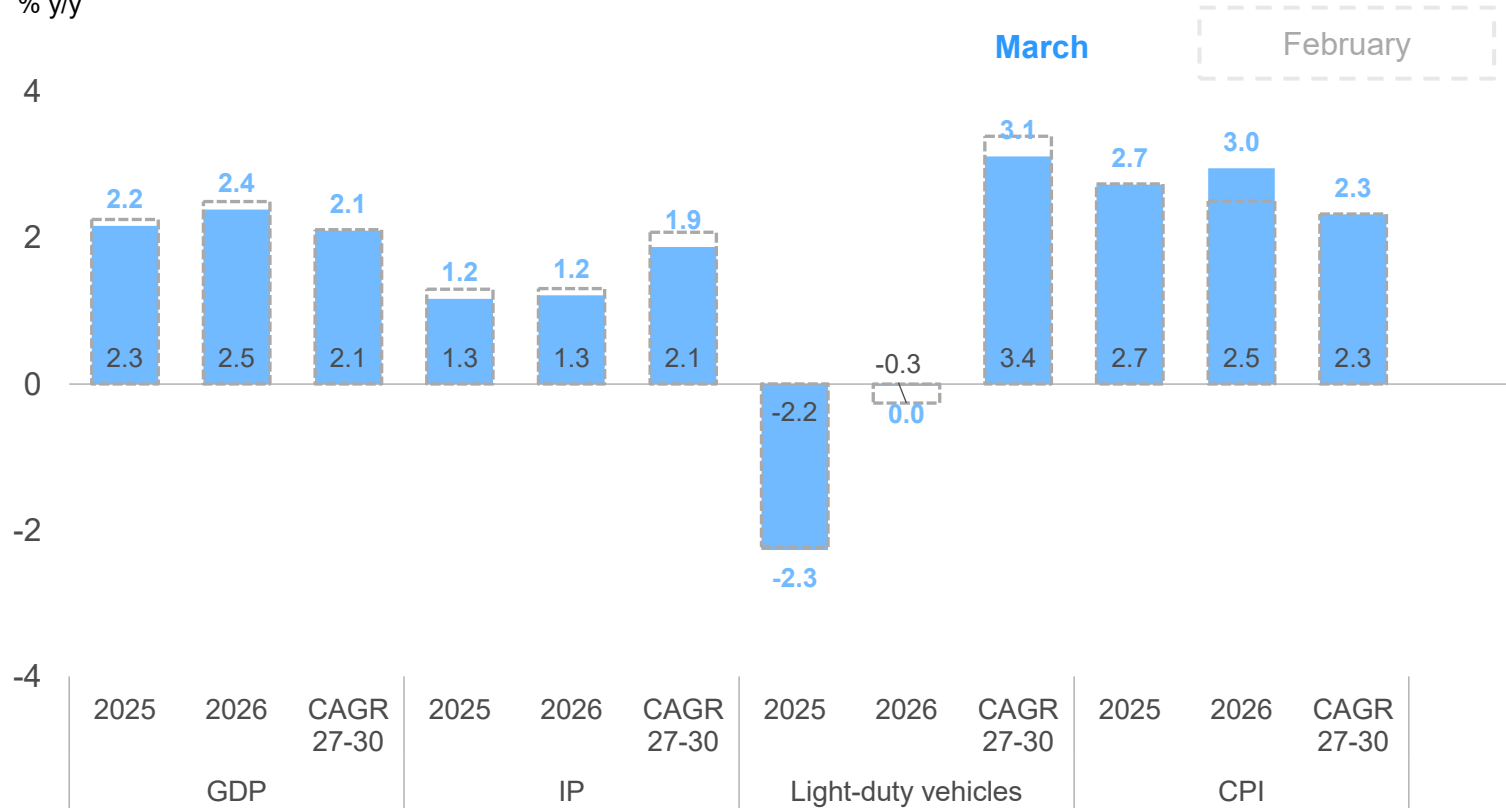


Ongoing conflict in the Middle East raises economic risks

Growth, IP and CPI stand out as key changes in the 2026 forecast

US annual growth for key variables

% y/y



DATA: CRU

Rising oil prices to filter through, pressuring consumers and industry

On February 28, the US launched airstrikes on Iran, targeting nuclear facilities and military infrastructure. The situation has since escalated into a broader energy crisis in the Middle East, with Iranian forces effectively closing the Strait of Hormuz and disrupting roughly 20% of global oil supply. As a result, US gasoline prices rose 37% over March and continue to climb, the first time they have reached \$4 since the Russia–Ukraine conflict in 2022.

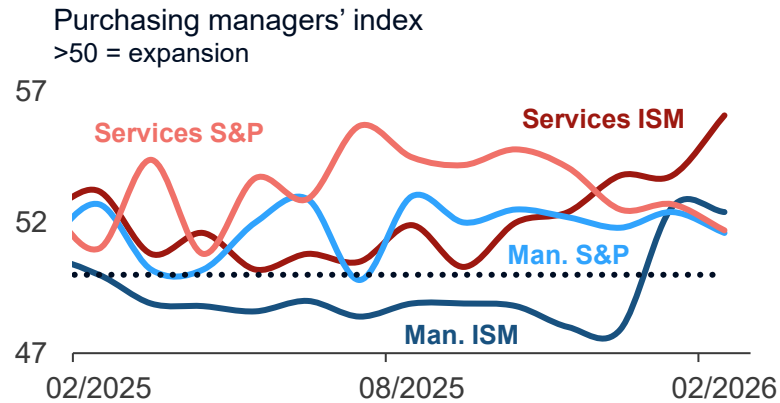
In our base case, higher fuel prices will weigh on consumer demand, a key driver of US economic growth, with a disproportionate impact on low- and middle-income households. This is expected to weaken GDP and industrial production while pushing inflation higher for both consumers and producers. Combined with a slowing labour market, these dynamics have revived concerns about stagflation.

The outlook for monetary policy has become more complex. The Federal Reserve is unlikely to cut rates while the conflict persists, though we expect easing to take place in September and October, with total cuts of 50 bps in 2026.

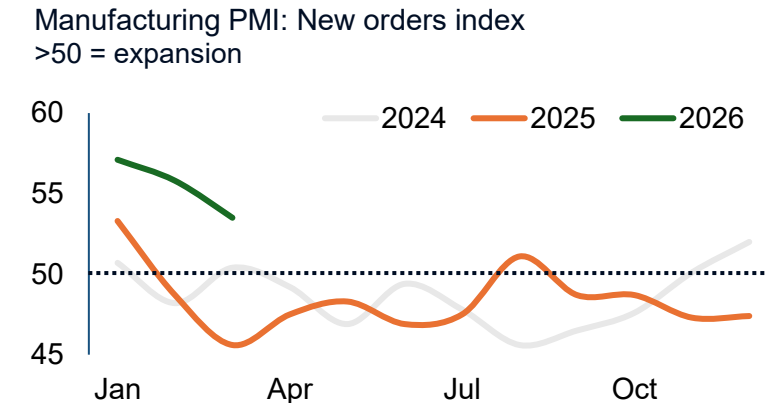


US Manufacturing returns to growth but risks remain

Manufacturing and services are expanding



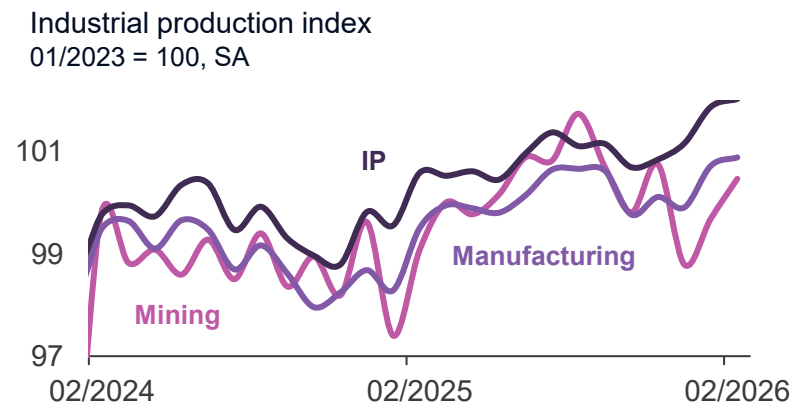
Manufacturing new orders have strengthened



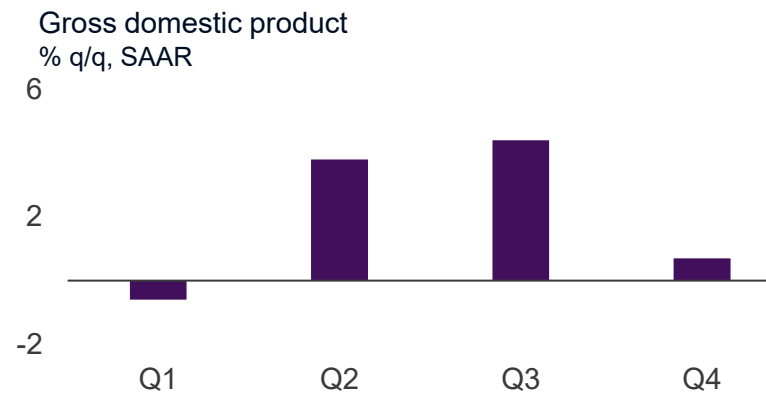
Operating costs are under pressure from tariffs and the oil price shock

The March PMI survey was over 50 for a third consecutive month, indicating a continued expansion in manufacturing. Much of the recent improvement is driven by stronger new orders, likely reflecting a seasonal restocking cycle. Additionally, firms may be attempting to front-load activity ahead of potential tariff changes following the recent Supreme Court decision. However, this year's start has been stronger than prior years.

February sees a broad-based rise in IP



Q4 GDP revised down to minimal growth



Prices remain a key headwind. Manufacturers continue to face elevated input costs due to Section 232 tariffs. Despite these pressures, the rebound in manufacturing has contributed to an increase in industrial production.

Recent data show that the US economy grew modestly in Q4, expanding at an annualized rate of 0.7%, down from 4.4% in Q3. This slowdown was largely expected, as government spending declined following the 43-day shutdown late last year. A considerable rebound in Q1 is unlikely, after another government shutdown resulted in disruptions to air travel and other areas.

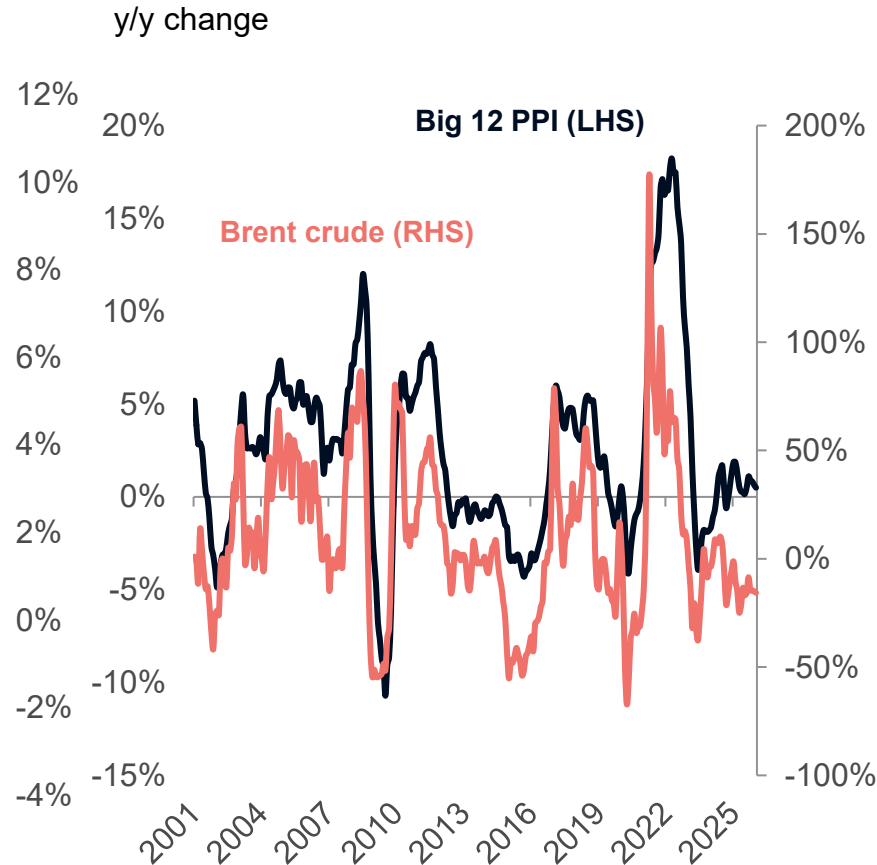
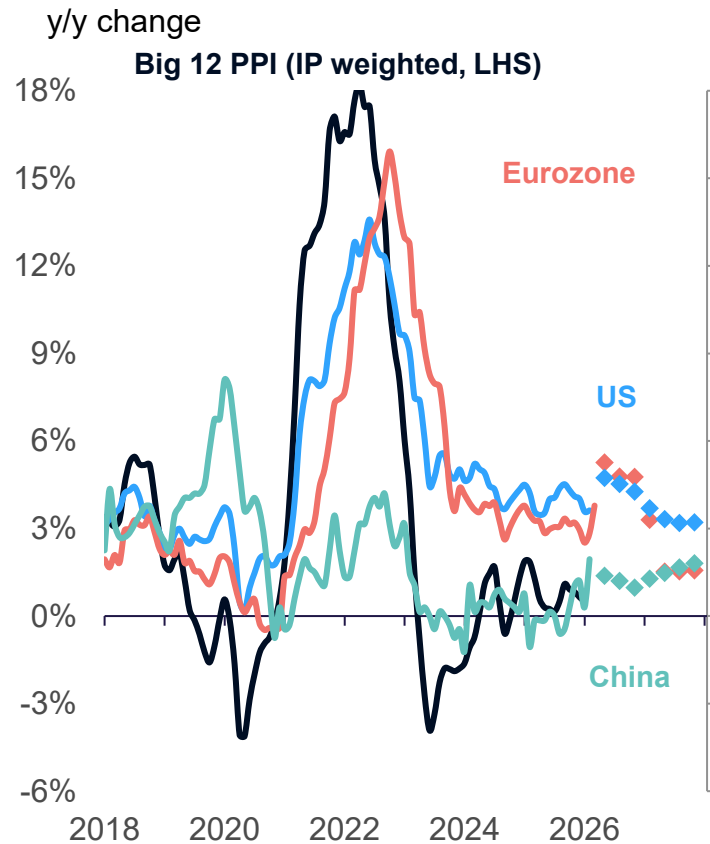
DATA: U.S. Federal Reserve Board, U.S. Bureau of Economic Analysis, Institute for Supply Management, CEIC, CRU



Higher energy and food prices will push up inflation this year

We expect a sharp jump in inflation

Measures of US inflation have diverged



Even if the crisis de-escalates quickly, higher inflation is likely

We expect the crisis in the Middle East to lead to an increase in inflation, even if de-escalation comes quickly. Although oil prices will fall back quickly if normal transit through the Hormuz resumes, a risk premium is likely to keep prices above 2025 levels. LNG prices are almost guaranteed to remain higher y/y, given the damage to Qatari facilities. The combination of higher fertilizer, energy and freight costs is likely to push up food prices.

We expect this energy shock to have a lesser impact on inflation in the US where gas (and power) prices are relatively insulated by the limited capacity to export LNG than other regions such as Europe.

With the greater scope for physical disruption to the oil market, this crisis has the potential to have even greater global impact than the 2022 energy shock. However, the world economy entered this crisis with inflation more under control. Central banks therefore have more room to be flexible.

DATA: CEIC, CRU; NOTE: 'Big 12' are China, US, Eurozone, Japan, South Korea, India, UK, Russia, Mexico, Brazil, Canada, Turkey, which account for ~86% of global IP. US CPI inflation for October is interpolated from September and November data.



AUTOMOTIVE MARKET TRENDS

BEV forecast revised down in the World ex. China

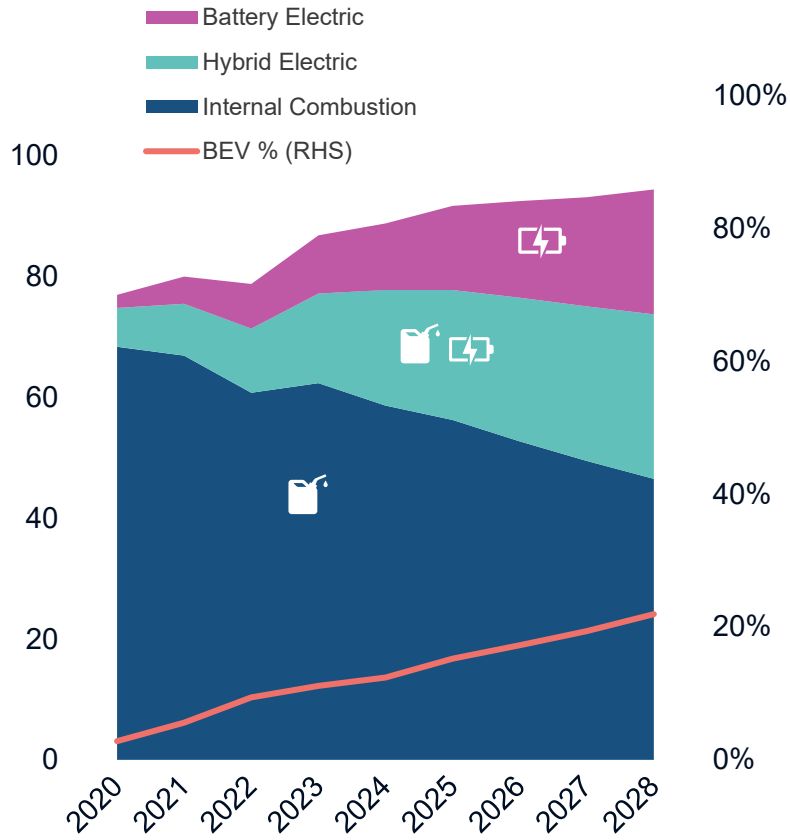
BEV sales grew strongly in 2025, driven by incentives, new model launches, and emissions compliance. North America recorded y/y declines in 2025, pressured by emissions-policy changes and the removal of the US consumer tax credit. In 2026 North American new BEV sales are likely to contract. However, used EVs may see increased interest in the US. China's BEV growth is also expected to cool compared to 2025 levels; Europe is set to record relatively strong growth.



BEV outlook cut in Europe & N. America; while BET* forecast revised up in China

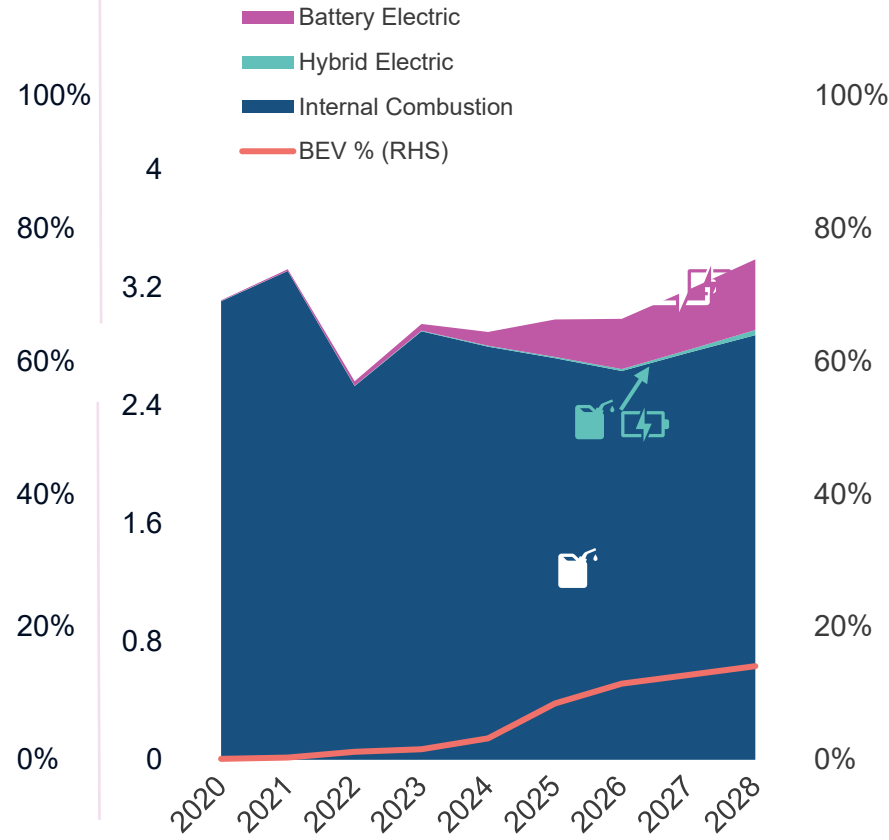
Long-term prospects for EVs remain despite policy attrition, though adoption rates vary

Light duty vehicle sales by powertrain type, million



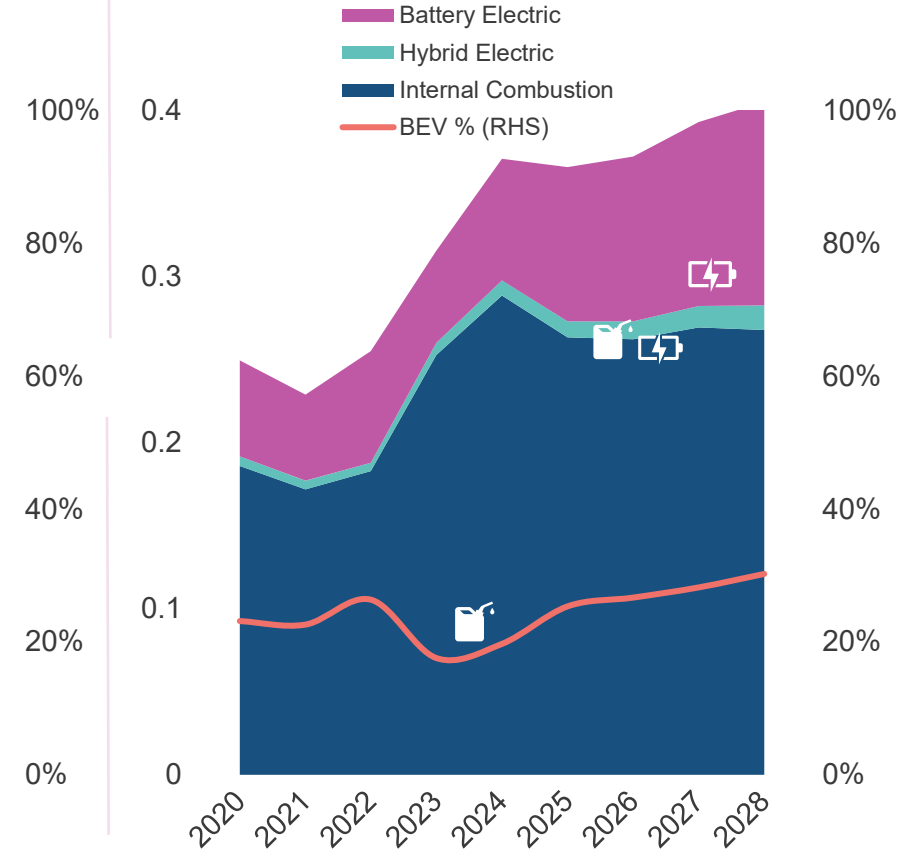
BET outlook revised upwards in China due to favourable incentives

Truck sales by powertrain type, million



City buses to witness strong ZEV growth, given CO₂ reduction targets and conducive duty cycle

Bus sales by powertrain type, million



DATA: CRU. Note: Hybrid Electric includes MHEV, MHEV (48V), FHEV, PHEV, EREV and FCEV. Internal Combustion includes Petrol, Diesel, CNG and LNG. *BET = Battery Electric Truck

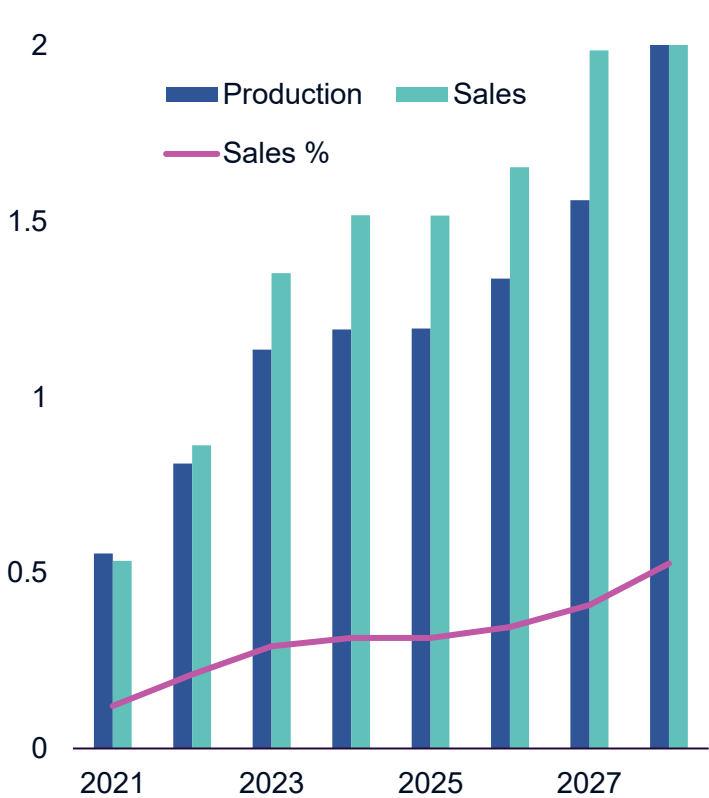


North America BEV market weakens as policy support is withdrawn

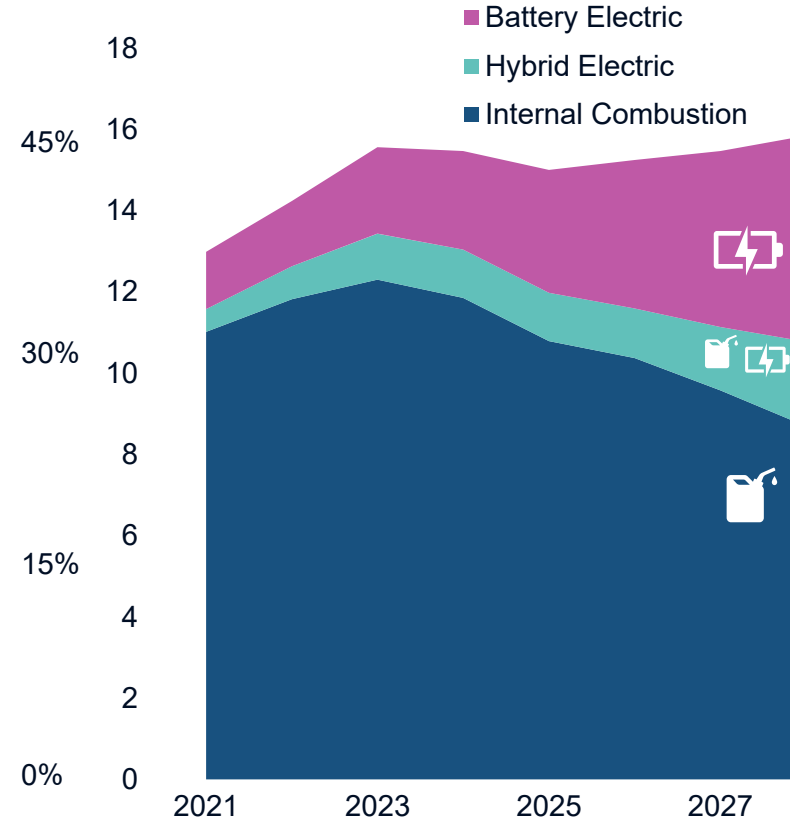
BEV sales and production forecast downgraded due to policy environment

ICE-based vehicles largely to remain dominant over forecast horizon

N. America BEV sales, production, and market share, million units (LHS) and % (RHS)



N. America production by powertrain type, million units



Legacy OEMs reset EV strategies

Monthly BEV sales in North America continue to record y/y declines following the removal of the consumer tax credit at the end of September 2025. While the pace of decline eased versus prior months, volumes still fell by double digits. BEV share ticked up only modestly, hovering around 6% and remaining well below levels seen before incentives were withdrawn.

Since incentives were removed, several legacy OEMs have reset their EV strategies. This has included cancelling or delaying BEV programs, repurposing plants with excess capacity, and pivoting back towards ICE and hybrid line-ups. Some are also evaluating alternative uses for excess battery capacity, including battery energy storage. Industry write-downs linked to EV capacity, vehicle programs, and battery manufacturing are estimated to be approaching \$50bn, with GM, Ford, Stellantis, and Honda among those re-strategising. However, OEMs are not abandoning BEVs; rather, they are shifting focus towards smaller, more affordable models, while leaning on ICE and hybrid options in other segments such as large SUVs and pick-ups.

Looking ahead, BEV sales in 2026 are likely to remain weak amid softer consumer sentiment and the absence of incentives. Range-extender vehicles are expected from 2026 for some applications, supporting our higher plug-in hybrid outlook. Policy changes—such as potential rollbacks to emissions and fuel-economy standards—could further reduce regulatory pressure to prioritise BEVs. EV growth is therefore expected to proceed at a more moderate pace, with ICE and hybrids remaining integral over the forecast horizon.

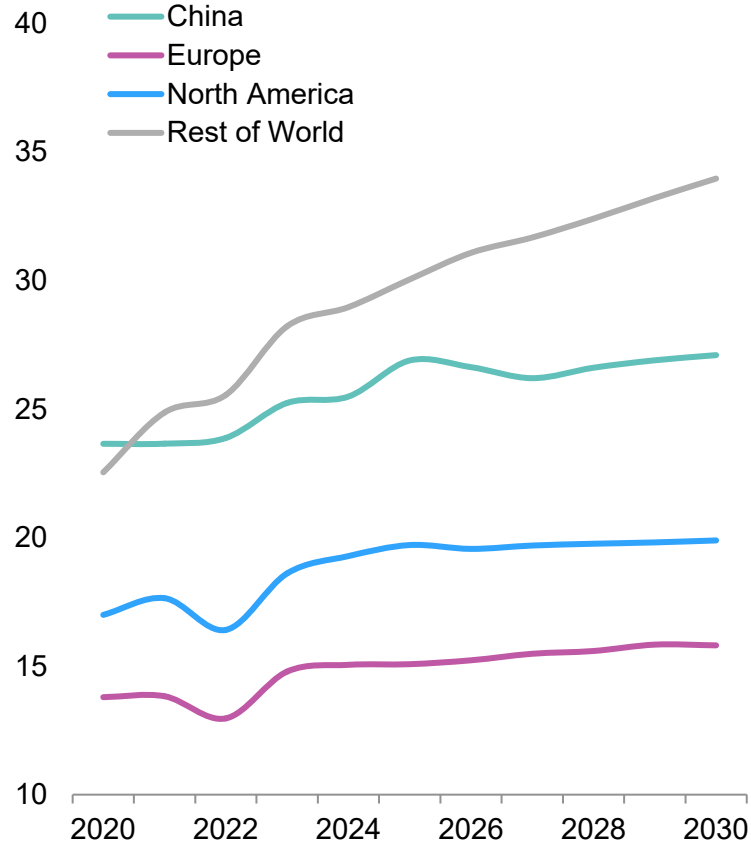
DATA: CRU, ANL



Pb-acid batteries are being challenged, but remain the market standard

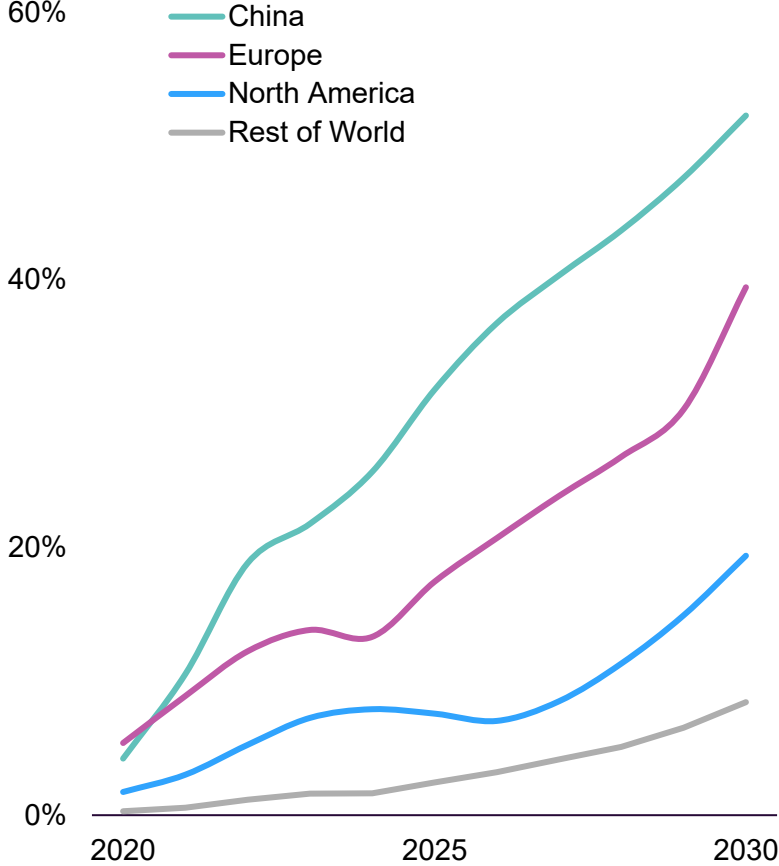
Weakness in China sales will be shored up by RoW

LDV sales by region, million units



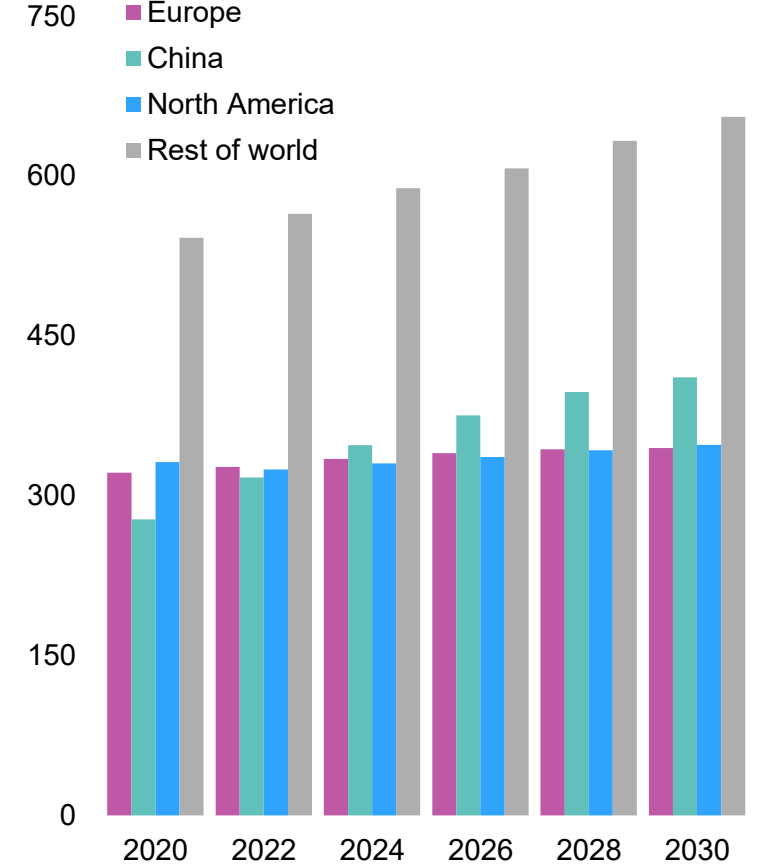
EV adoption is threatening Pb-acid convention

LDV BEV sales penetration rate by region, %



Cheaper, proven ICE tech remains majority of parc

LDV parc by region, million units



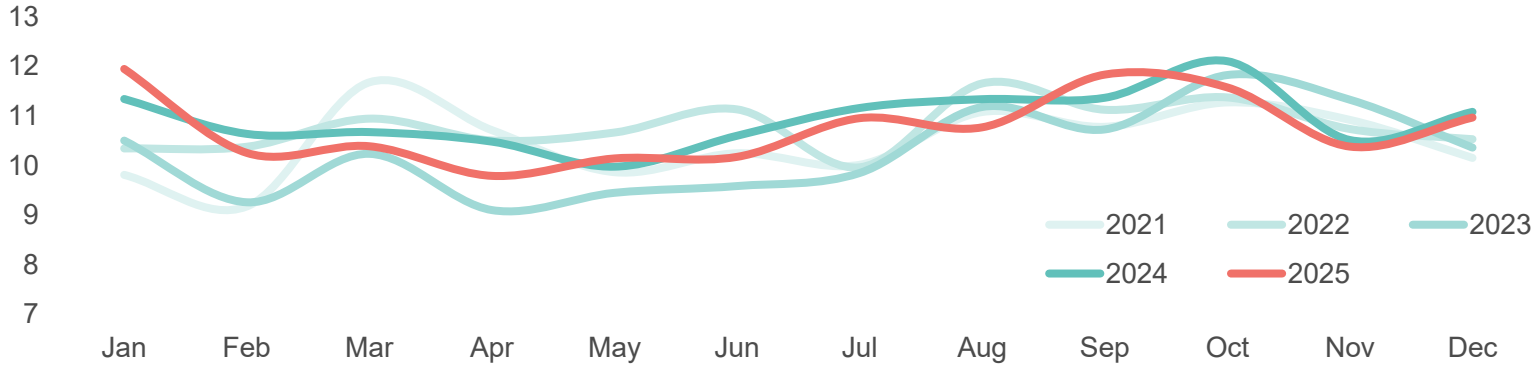
DATA: CRU, GlobalData



Automotive LABs loses charge in 2025 as 2024 momentum fades

Replacement posted a strong 2024, before slowing in 2025

Replacement auto LAB shipments, N.America (M units)



Replacement: The key driver

Replacement auto LAB shipments fell in 2025 by 1.6%, after experiencing the highest growth since 2011 last year. 2025 finished the year strong in the replacement sector, at similar levels to 2024.

OE auto LAB shipments continue to be challenged, shipments decreased by over 12% in 2024 and then a further 3.9% in 2025.

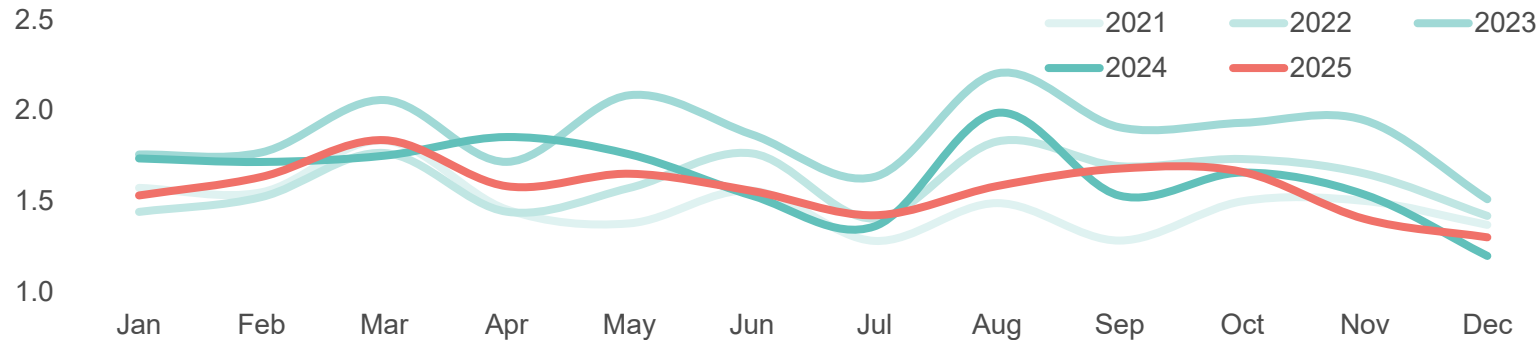
However, the OEM market share was less than 13% in 2025.

Both the passenger car and the heavy-duty sectors suffered from a slowdown in 2025, with the heavy-duty sector contracting by 4.2% and the much larger passenger car sector slowing by 1.7%.

OE auto LAB shipments finished the year better than the end of 2024, but still on a downward trajectory as demand for ICE vehicle sales continue to slow. Going forward, an expected hike in central bank rates in response to a feared sustained high oil price environment will harm OEM vehicle sales and shipments.

OE shipments finally slide in 2024 H2 and stay slower in 2025 H1

OE auto LAB shipments, N.America (M units)



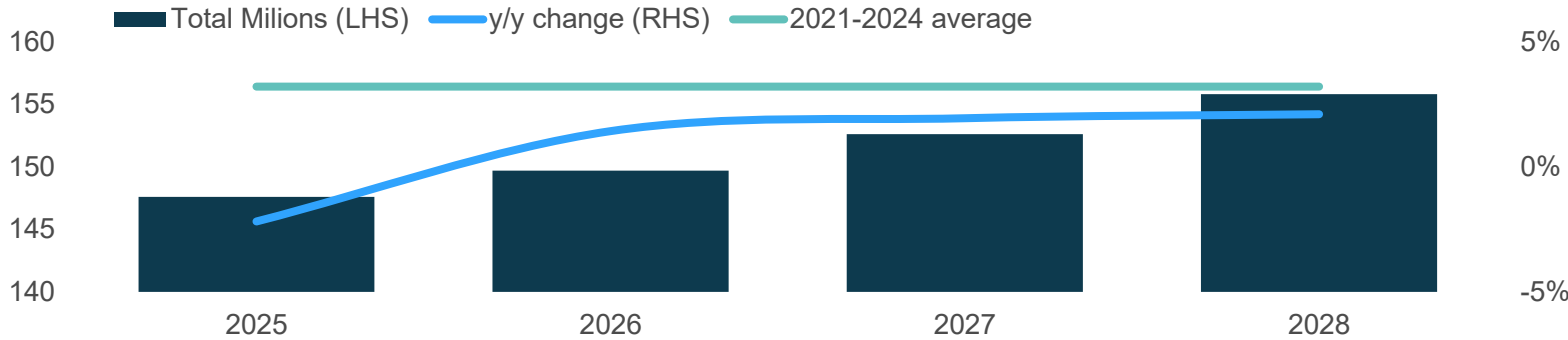
DATA: BCI - BCI 10yr NA SLI Battery Transportation Shipment Database 12_2025. NOTES: LAB = Lead Acid Battery, HEV = Hybrid Electric Vehicle, BEV = Battery-powered Electric Vehicle.



BCI Data: Automotive battery growth expected to continue at a modest pace

Auto LAB growth below previous path

Auto LAB shipments, North America (M units)



Post-Covid boom over, AGM technology takeover

Automotive LAB shipments are expected to grow by 1.9% y/y in 2026, after contracting by 2.1% in 2025. Post 2026 auto LAB shipments will continue to grow at ~2% over the forecast period, below the 3.2% y/y average of 2021-2024.

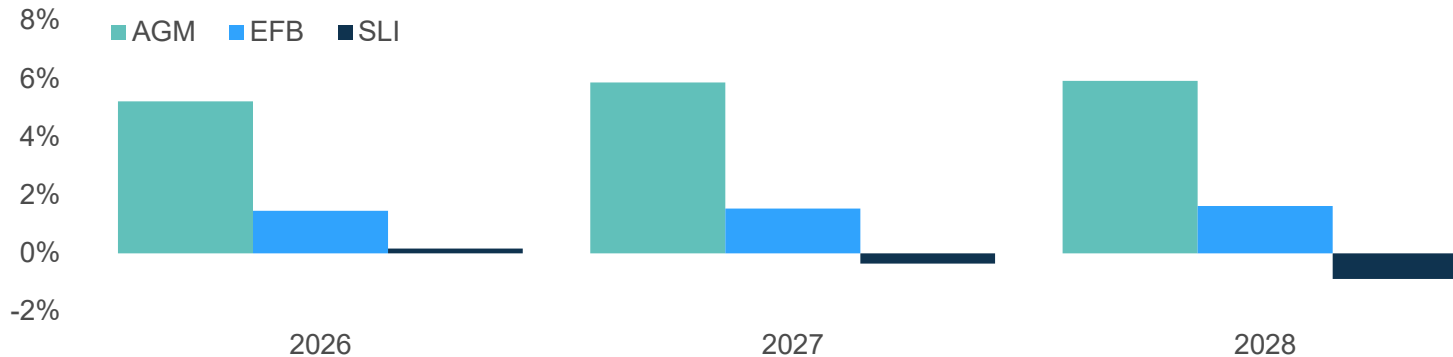
Vehicle population will continue to grow and age, ensuring robust replacement auto business, but the post-covid catch up boom is over.

All vehicles across the powertrain range need low 12V voltage batteries to perform starter and auxiliary (safety, security) duties, so there are opportunities for LABs whatever powertrain OEMs choose.

LAB technology mix will see strong growth in AGMs and EFBs, but SLI are expected to contract from their dominant base.

Technology preference shifting to AGM, with EFB also showing good growth

LAB growth rates by technology, North America (y/y change)



DATA: BCI. NOTES: LAB = Lead Acid Battery, AGM = Absorbent Glass Mat, EFB = Extended range Flooded Batteries, SLI = Starter Lighting Ignition flooded batteries.



INDUSTRIAL

BESS demand continues to be strong globally, but LAB shipments suffered

Global BESS demand remains strong, with utility-scale installations continuing to be the primary driver of growth. However, industrial LAB shipments have slowed, while shipments of OEM electric industrial trucks have increased

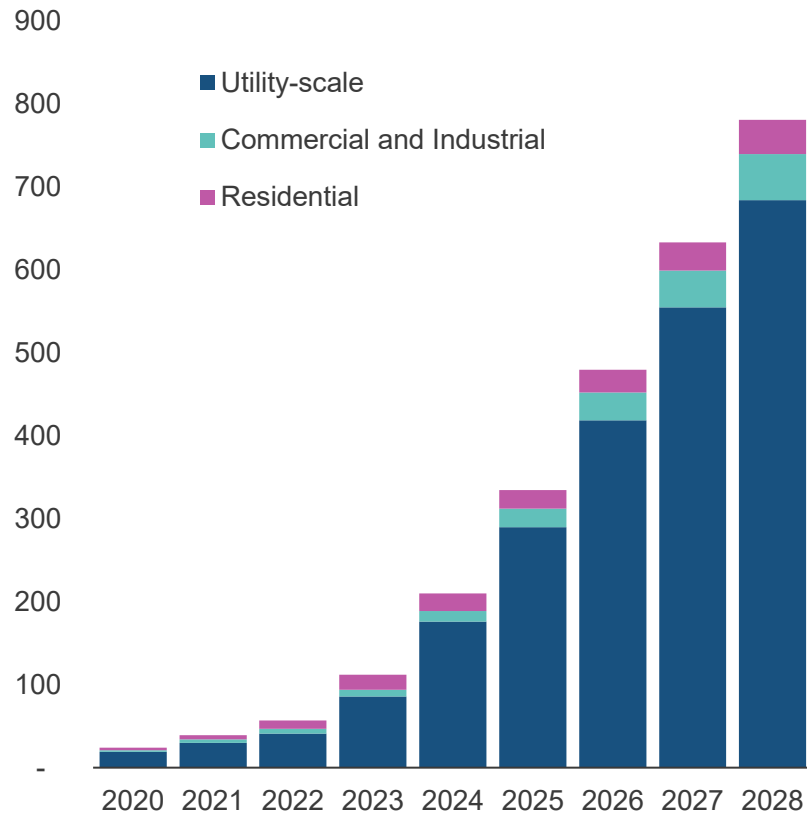


Utility-scale BESS pipeline to grow, particularly in Europe and the Global South

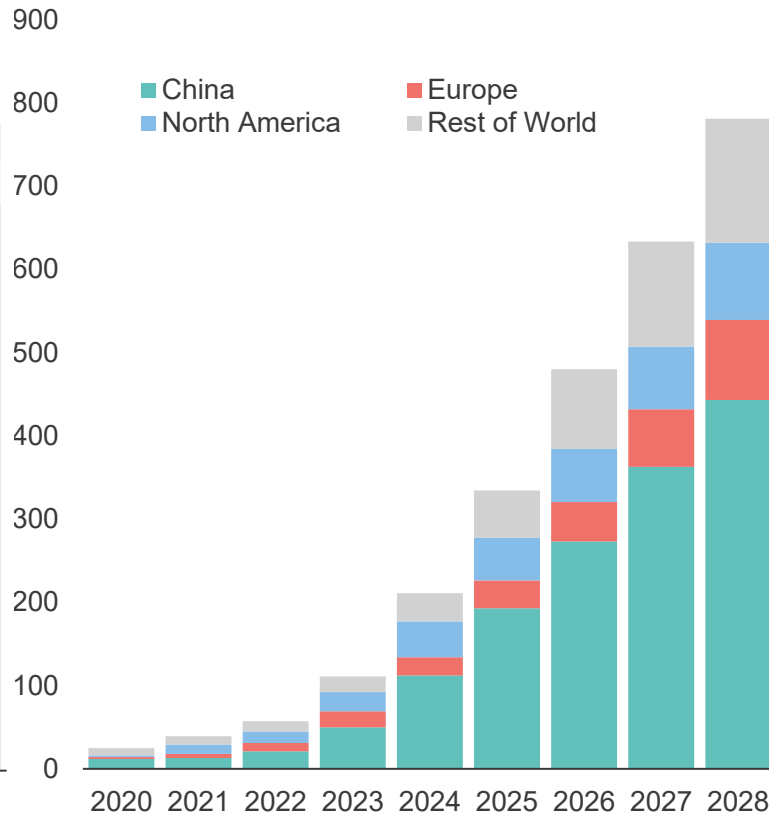
Utility storage will continue to dominate demand growth

China to implement measures countering drop in PV installations

Annual BESS demand by market segment, GWh



*Global BESS demand by region, GWh



DATA: CRU * Includes: Utility-scale, Commercial & Industrial, Residential

Strong demand outlook for BESS

In 2026, global cumulative global BESS demand will reach 1.3 TWh.

The growth of energy storage is primarily being driven by the economics of power storage, arbitrage, and grid-balancing needs. The major growth driver for demand will be stand-alone battery installations such as datacentres.

Despite a recovery in monthly Chinese solar PV installations, we expect contraction in 2026, due to changes to power pricing mechanisms. Chinese policymakers are looking to incentivise standalone utility storage project via new capacity pricing to tackle intermittency and curtailment issues.

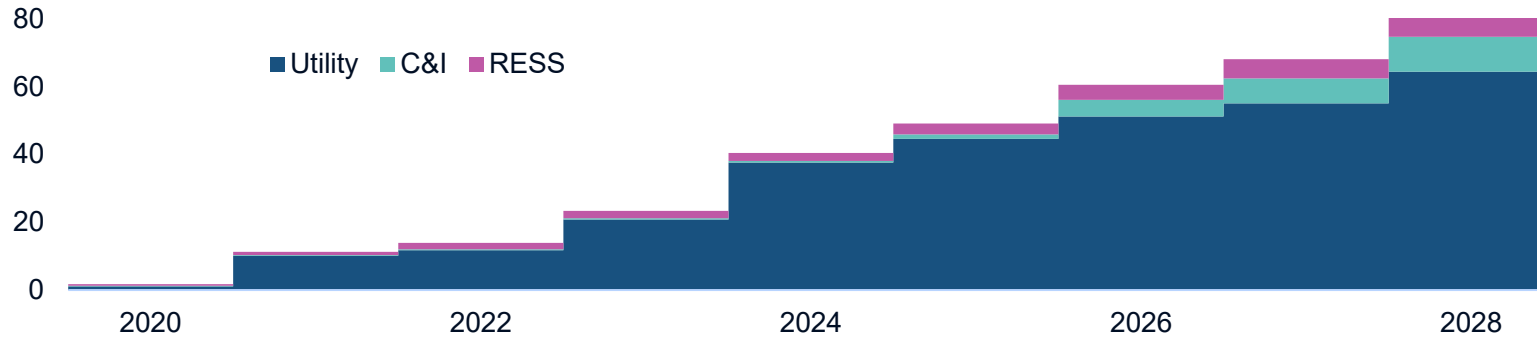
New demand hotspots are emerging across the world, notably Europe and the Global South, where there is a surging number of PV and BESS mandates, funding, and giga-scale project announcements. India, the Gulf states, and Chile remain notable demand hubs.



Imports are critical for the US to meet its BESS demand

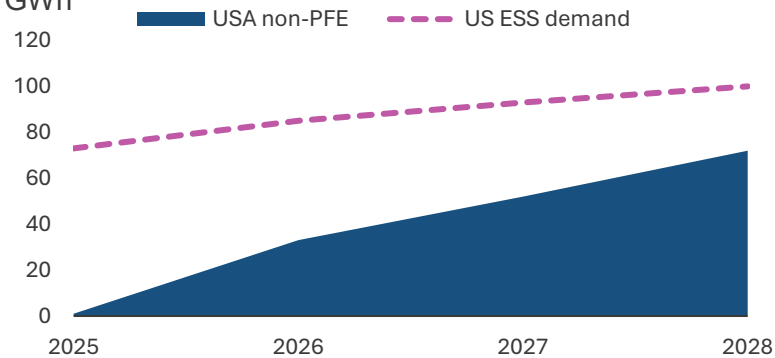
US BESS will exceed 800 GWh annually by 2028

Annual US BESS installations by market segment, 2020 to 2028, GWh



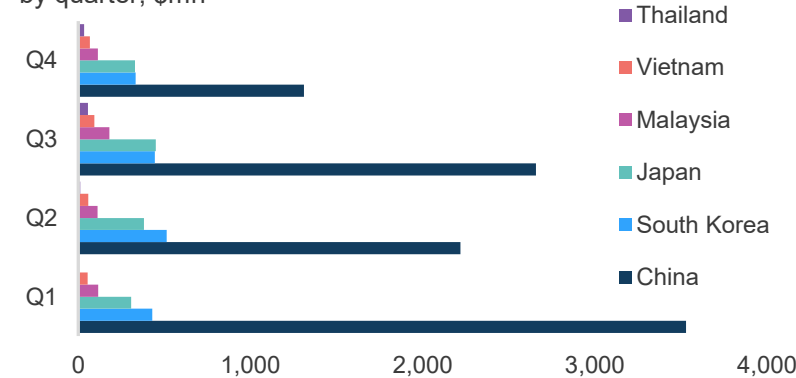
US local ESS production will far short of demand

US ESS demand vs LFP ESS cell capacity, GWh



South-East Asia becoming more important for supply

US Lithium-ion storage battery imports by Asian country in 2025 by quarter, \$mn*



US BESS demand is expected to exceed domestic production in the medium-term

As the race for data centres, especially for AI applications, continues to accelerate, we have upgraded our US utility demand forecast. In addition, we have added demand in the industrial sector for back-up and rack batteries required for black-start applications.

Despite the political uncertainty from the Trump Administration's tariffs, US domestic ESS production has begun to scale up with LGES, Fluence and Tesla forming the backbone of local supply. Issues persist, including the scale-up of domestic graphite anode material, where local producers have struggled to qualify material for US gigafactories.

We expect that any supply shortfall will likely be met by FEOCs operating in China and South-East Asian countries like Malaysia and Indonesia who have begun to manufacture BESS.

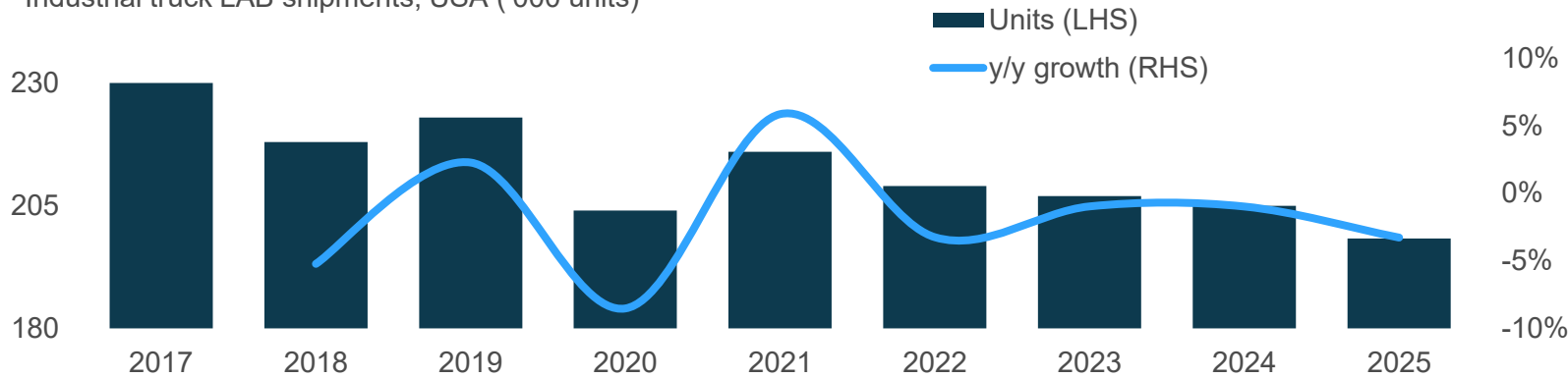
DATA: CRU, GTT



Industrial truck LAB demand slips further as lithium market share grows

After 2021 post-covid rebound, LAB sales slip again in 2025...

Industrial truck LAB shipments, USA ('000 units)

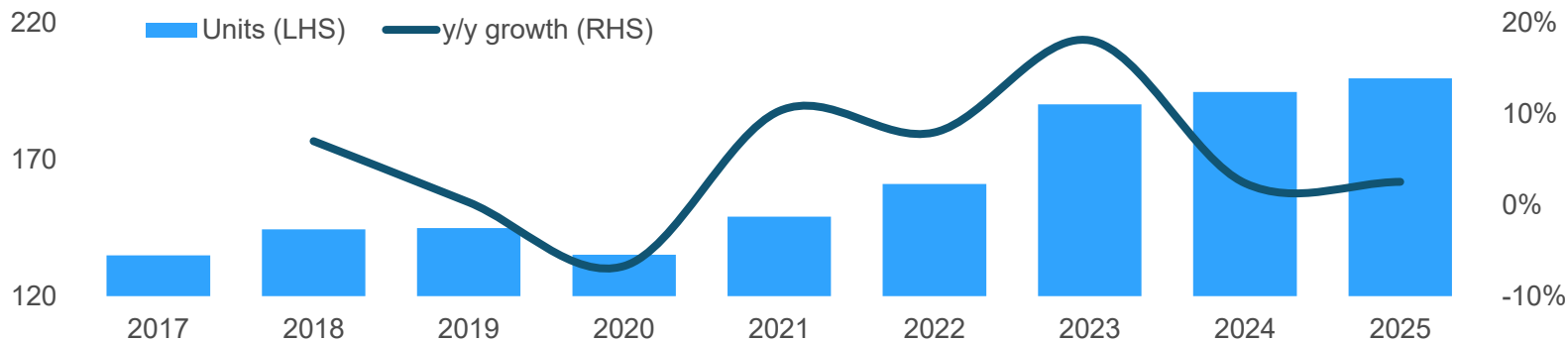


LAB outlook positive despite higher LIB share in trucks

After strong post-Covid recovery in 2021, sales for industrial truck LAB shipments have continued to fall every year since. Sales were 198 k units in 2025, down from the 2021 peak of 216 k units.

...but OEM electric truck sales up again last year

OEM electric industrial truck shipments, USA ('000 units)



However, OEM electrical industrial truck sales have continued to grow, albeit more slowly recently. Sales grew at 2.5% in 2025, similar to the year prior.

Despite the recent stable growth trends, BCI forecast a 3.8% median average annual growth for LAB sales through to 2028. This is primarily fuelled by the industrial truck sector, alongside recoveries in mining and railroads.

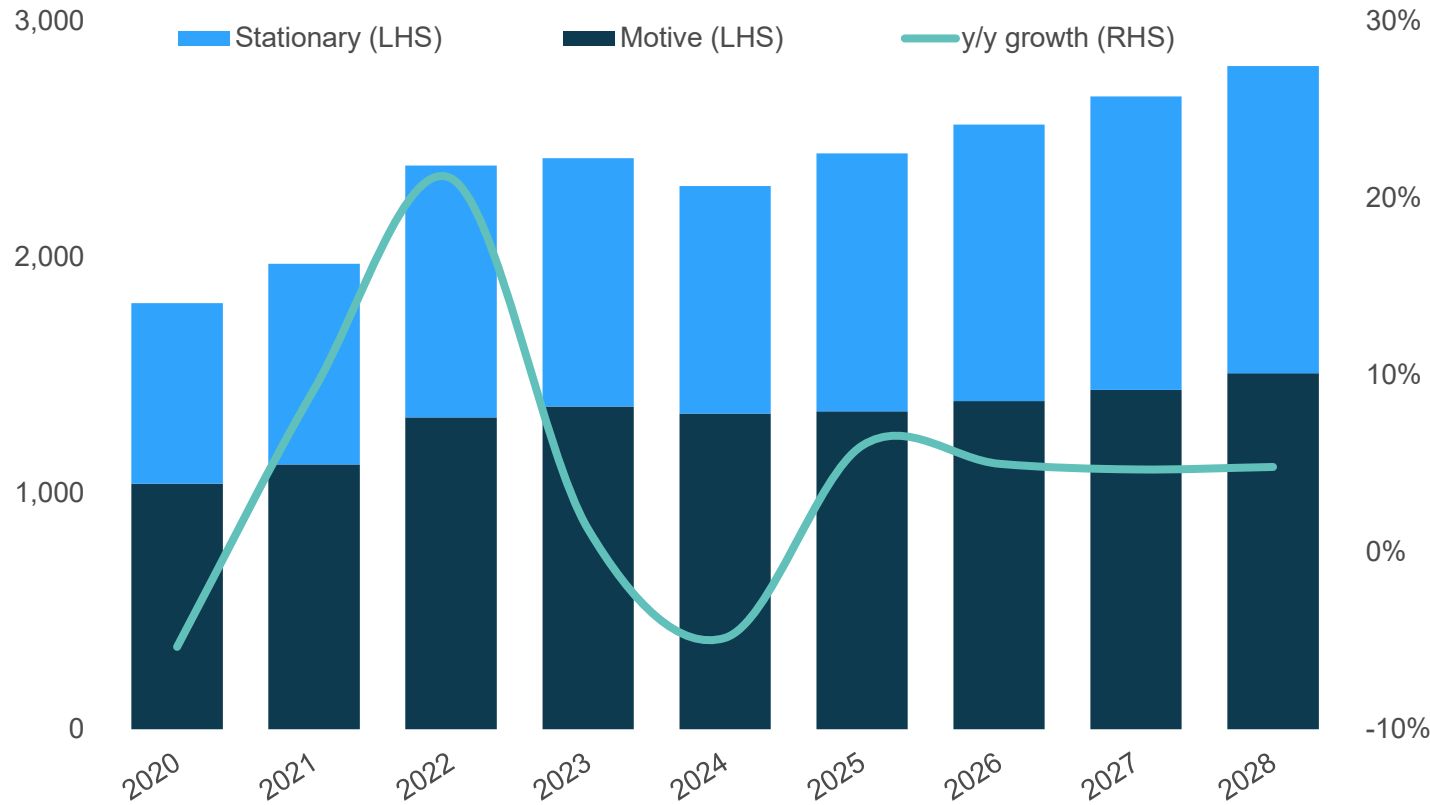
DATA: BCI/Hovo-Motive and Standby Power 2025 3 Year Forecast Report; For CRU team 4.13.26., ITA. NOTES: LAB = Lead Acid Battery, LIB = Lithium Ion Battery, Industrial truck LAB shipments 2017-2024 data from Hollinsworth & Vose, 2025 as per BCI Form A data



Stationary sector strong and growing

Industrial LAB recovery from 2023-2024 tempered by rising LIB share

Industrial LAB shipments, North America (US\$ millions)



Data centres critical for LAB growth

Stationary storage demand returned to growth in 2025 registering 13% growth, after an 8% dip 2024.

The surge in 2025 was primarily driven by an increase in UPS related LAB demand which increased 21% y/y. A key driver of LAB use in UPS is data centres and the electricity demand boom in 2020s underpinned by the emergence of AI. LABs continue to be reliable and cost effective, with replacement side strong. However, OE headwinds remain from LIB dominance, with NiZn also gaining a toehold in this sector.

Despite the above concerns, the forecast remains bullish on LAB sales out to 2028, with a median average growth of 4.8%.

While overall sales volume is less material than UPS, ESS is expected to grow at 17.3% over the review period.

Motive shipments are expected to grow at a CAGR of 2.8% between 2025 and 2028. The industrial truck, AGV & GSE sector is expected to grow the most at 12.2% over the forecast period, followed by mining at 8.7%.

DATA: BCI/Hovo-Motive and Standby Power 2025 3 Year Forecast Report; For CRU team 4.13.26, CRU. NOTES: Sales in US dollar terms. ESS = Energy Storage System.



LEAD MARKET OUTLOOK SUMMARY

Lead market deficit to persist in North America

North America remains structurally short of lead. The region is already almost entirely reliant on recycled material, with limited primary capacity and only modest scope for supply growth. While global lead demand continues to rise, growth is slowing, and supply expansion remains constrained by feed tightness, weaker primary production and limited scrap availability.



MARKET BALANCE

Lead deficit to continue

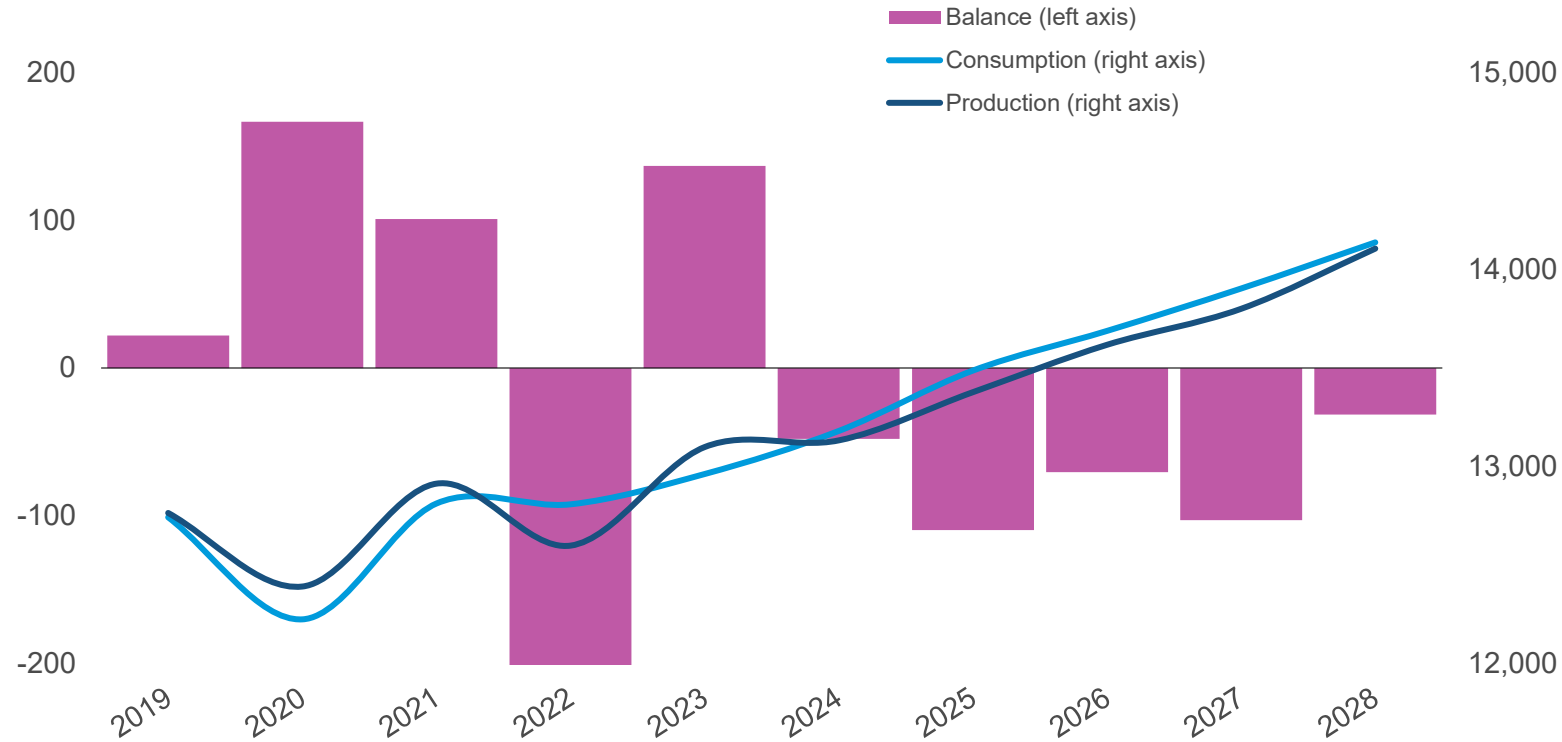
Supply deficit to continue until 2030. However, globally the deficit will begin to tighten from 2028 onwards. The North American deficit is expected to remain broadly unchanged over the forecast period (2026-2028).



Market deficit to begin to decrease from 2028

Persistent deficit arising due to reduced production at Chinese producers

Refined lead balance - world ('000 tonnes)



Market remains in deficit until production increases

The global economy has avoided the fallout of a full-blown trade war but deglobalisation and slowing economies are still evident from the fallout of tariff implementation and the middle east conflict. However, consumption is still growing.

Meanwhile, while production continues to grow at a steady pace, we do not expect substantial supply growth until 2028, following the probable installation of further capacity in the USA and greater utilisation of operations under new ownership in Europe.

Secondary growth is still expected, albeit at a slow rate while we now expect primary production to contract. Secondary and primary feed will remain a constant issue.

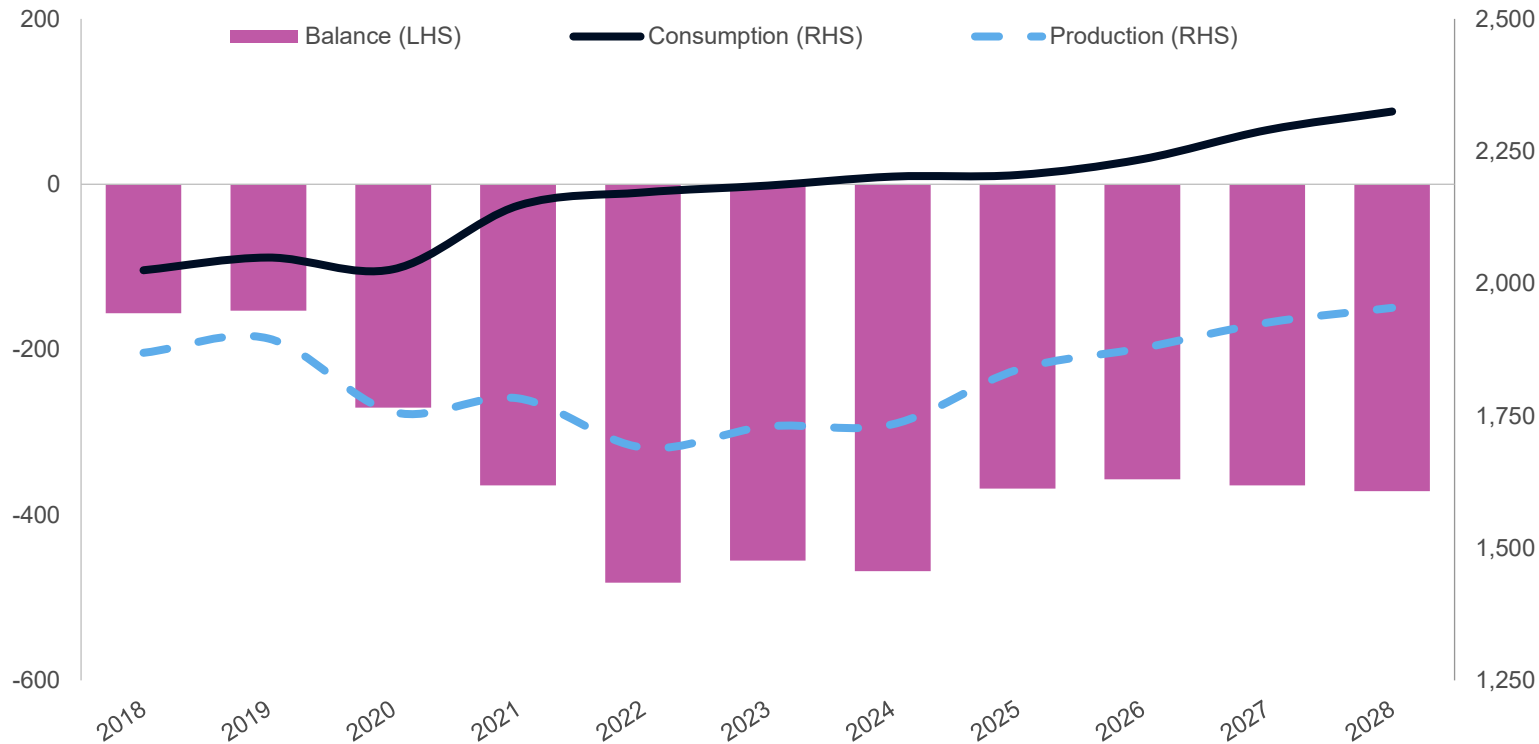
DATA: CRU



Deficit continues in North America

Deficit will remain at 2025 levels over the forecast period

Refined lead - North America, '000 tonnes



North America to remain in persistent deficit

North America's refined lead market is expected to remain in deficit over the forecast period, with the market shortfall broadly unchanged from last year.

Consumption continues to rise at a rate similar to production

Secondary production rose slightly in 2025, helping slightly close the deficit. However, the 2026 onwards, the deficit is expected to remain unchanged over the forecast period.

In the longer term, publicly announced investments could add around 600 kt by 2030 through new capacity and efficiency gains, though the figure may include other battery materials as well.

DATA: GTT, CRU. NOTES: * 'Basic' balance is the difference between production and consumption. USA, Canada and Mexico.



DEMAND

Demand to continue to grow, albeit slowly

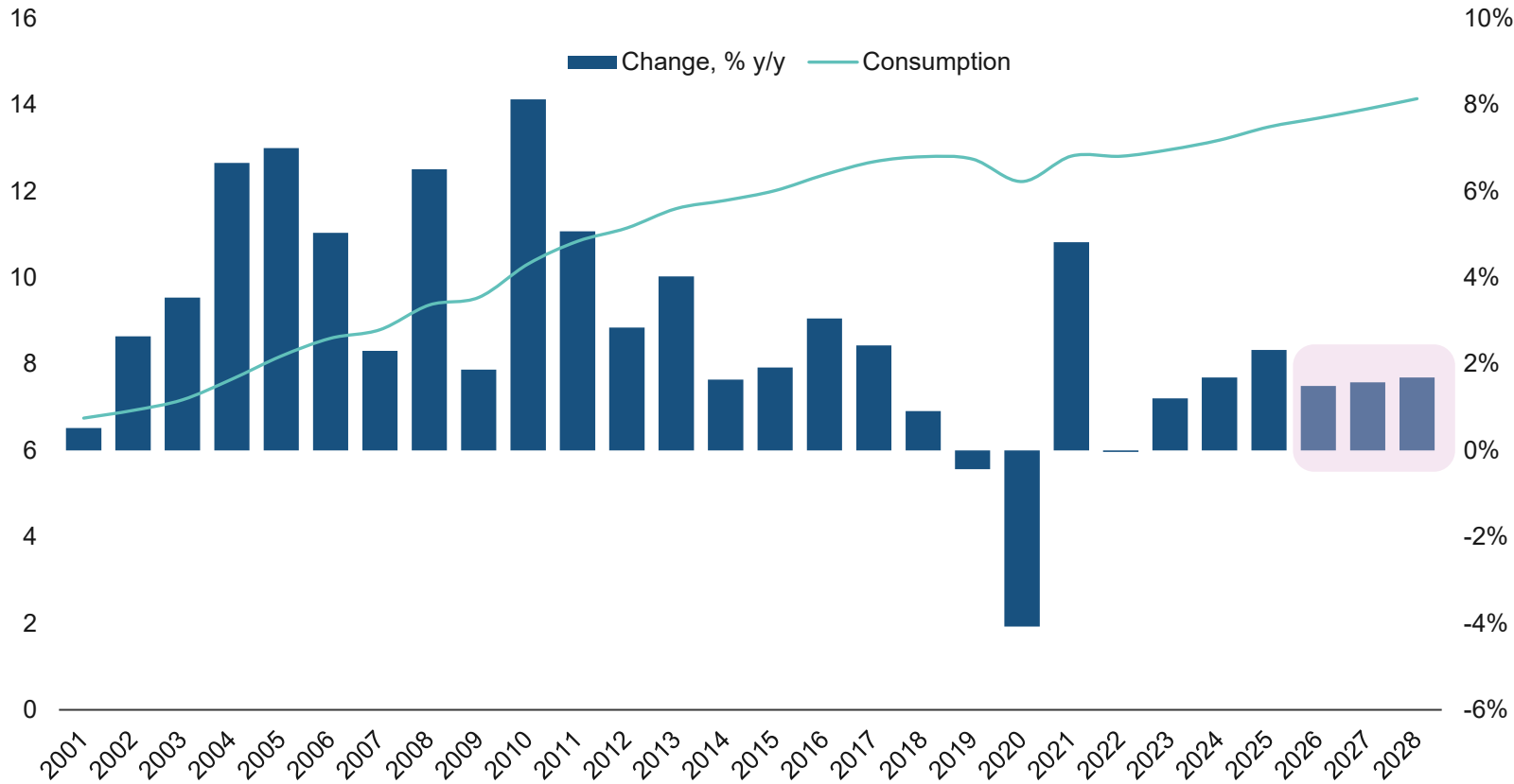
Global demand is expected to continue growing. However growing competition from alternative technologies such as lithium means that growth rates are expected to be softer.



Lead consumption growth to slow in 2026

Demand growth decrease over the forecast period

World refined lead consumption (left) million tonnes, % change YoY (right)



Demand to face competition from lithium battery technologies

While 2025 saw an increase of 2.3% y/y, growth in 2026 will drop to 1.5%, followed by steadily weaker growth to the end of the decade, dropping to 1.0% y/y by the end of the decade.

Lead exhibited its traditional resilience in comparison to other metals in reaction to macro-economic headlines in 2025. While OE production was still softer than previous estimates, the replacement auto battery sector has continued to support demand, albeit with softer numbers than previous years.

Lead batteries shared uses across industrial, e-bike and, to a lesser extent, autos will continue to face challenges from a rising lithium battery market share.

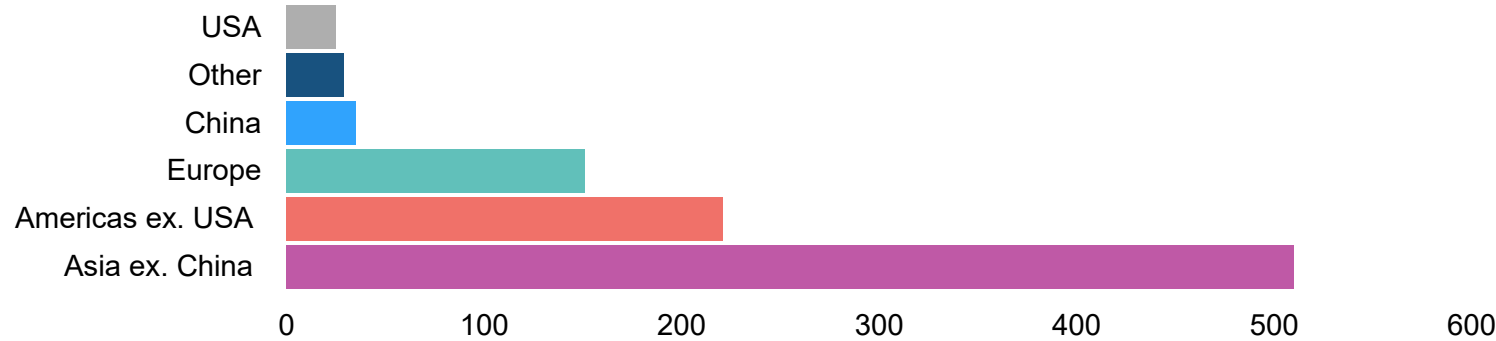
DATA: CRU



Asia continues to be the engine room for global lead demand

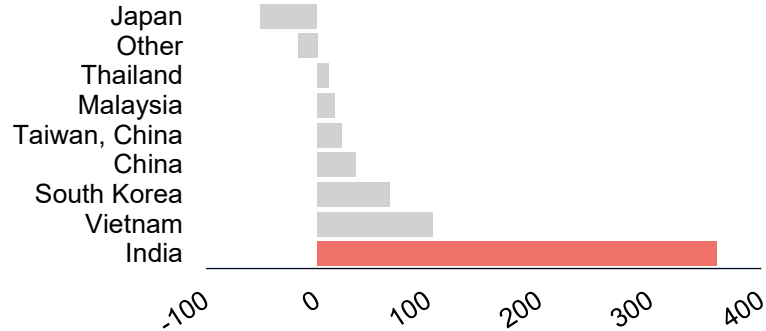
Asia ex. China leads the market in expected growth

Growth in refined lead demand, 2025 to 2030 change, kt



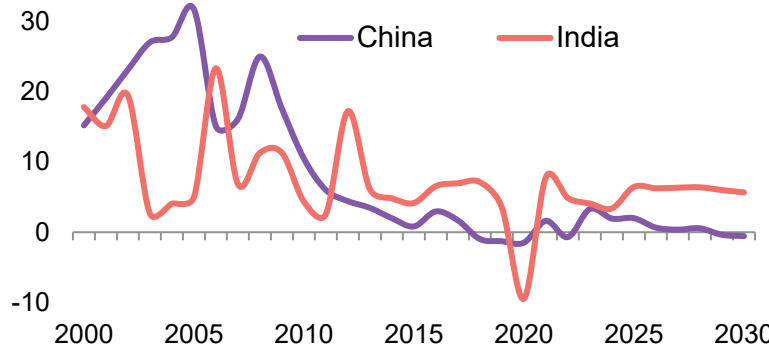
South and SE Asia will dominate demand growth

Refined lead demand growth, 2025-2030, kt



Indian "Tiger" roars louder than China's "Dragon"

Refined lead demand, y/y % change



China's growth plateaus

The mainstay of demand growth for the lead market has shifted from China, to its southern Asian neighbour. India will see its market grow almost 10 times that of China over the next five years, as China faces rising competition in export markets and slower domestic growth. Li-ion technology is also becoming a dominant force, as well as Na-ion, and is expected to erode Pb-acids use in transport later this decade for the region.

India now accounts over two-thirds of Asia ex. China growth and over a third of additional global demand to 2030. Growth is underpinned by healthy economic forecasts and the adoption of lead battery technologies alongside lithium in this cost-sensitive market.

Growth is also expected to be slower in the mature markets with the European and US markets accounting for 15% and 16% of the global growth respectively.

DATA: CRU.



SUPPLY

Secondary supply to grow whilst primary shrinks

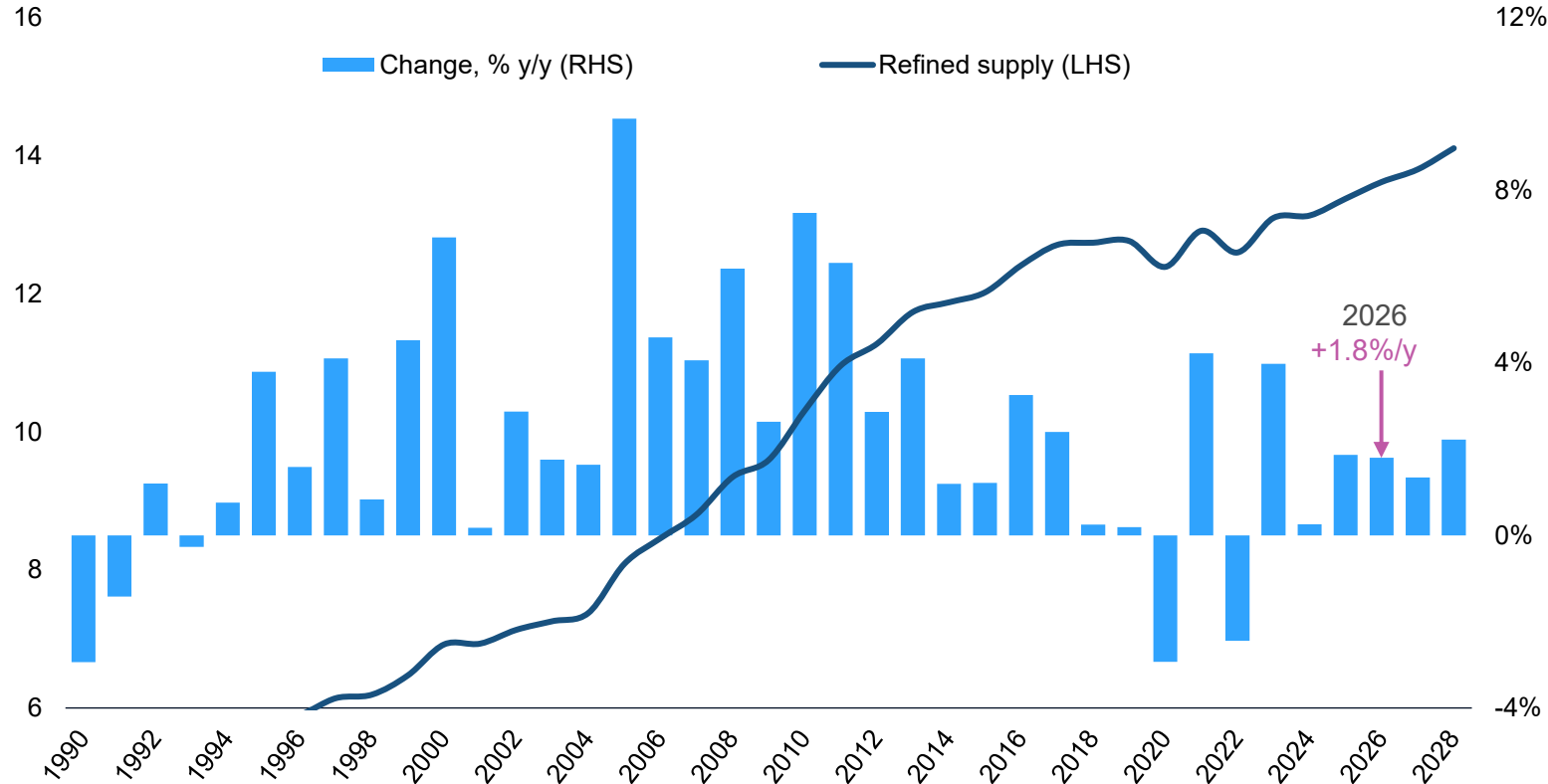
Refined supply is expected to grow 1.8% in 2026. The majority of this growth is forecast to come from secondary processing. 90% of North American supply is secondary with USA being 100% secondary.



Global refined production to grow at a steady pace in 2026

Supply growth in 2026 continues to be steady

Refined lead production – world, M tonnes



Refined production expected to grow consistently in the short term, but slow down in the medium term.

Global lead production this year is expected to exhibit growth of 1.8% y/y. From this year growth is expected to average 1.6% y/y out to 2030.

Growth remains subdued as weaker Chinese primary output continues to weigh on the global total. Secondary production is expected to expand gradually.

After a stronger than expected growth in 2025, 2026 production is expected to come in over 100kt lower than forecast previously.

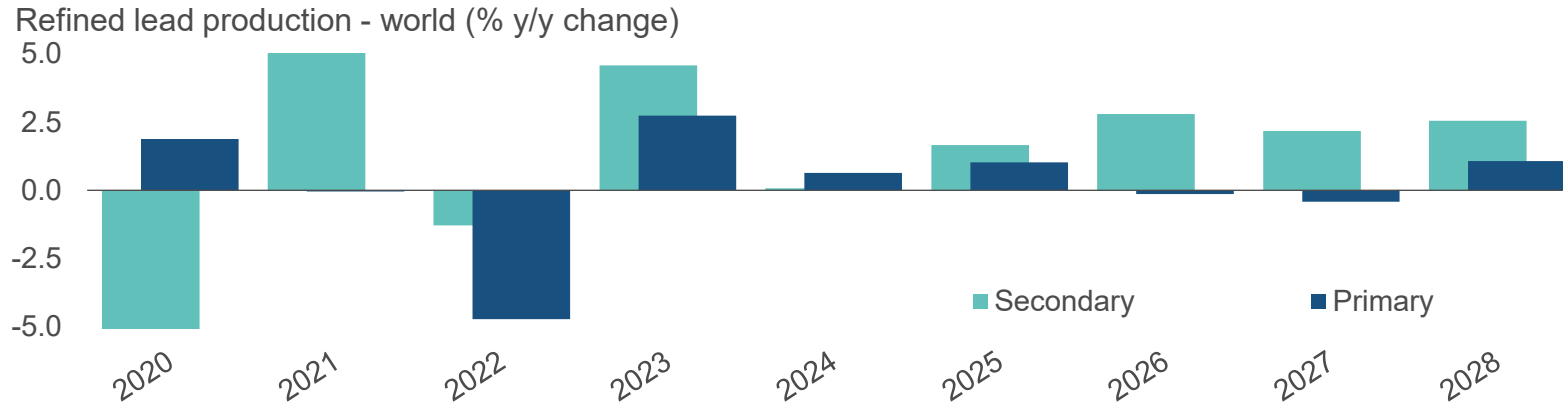
The medium-term profile improves from 2028 onward, supported by probable capacity additions in the USA and higher utilisation at European operations under new ownership.

DATA: CRU.



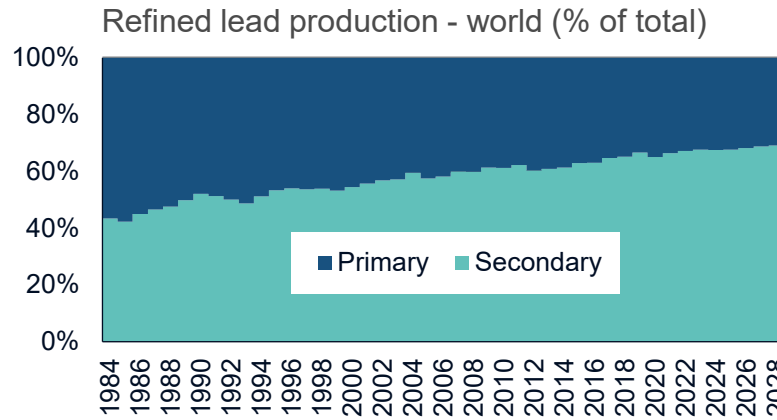
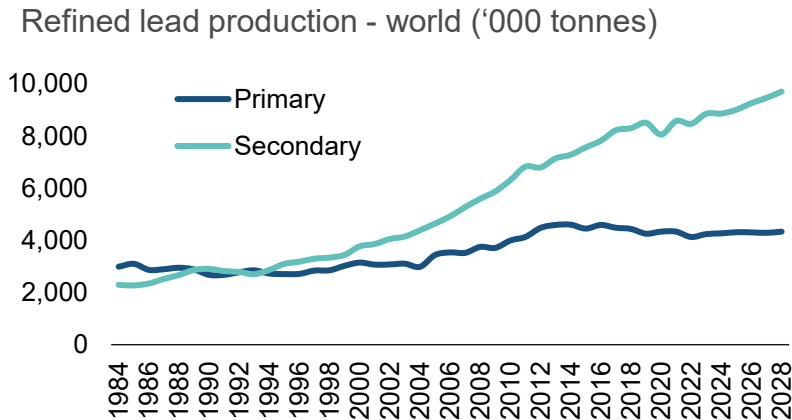
Modest growth for secondary production whilst primary output shrinks

Primary production to contract in most years of our forecast



Secondary supply to reach 9.2 m tonnes this year

Primary share of production to continue to diminish



DATA: CRU

Growth limited by feed tightness

In 2026, CRU models that primary output will decrease by 0.3% and secondary output will increase by 3% y/y.

Starting in 2026, we expect secondary production growth to slow modestly while primary production weakens sharply through most of our forecast period. However, over the forecast period, 2027 is expected to show the most severe contraction in primary lead production since 2022.

Growth in primary production will be limited as smelters, particularly in China, prioritise the recovery of silver over lead via the processing of lower-lead-content concentrates.

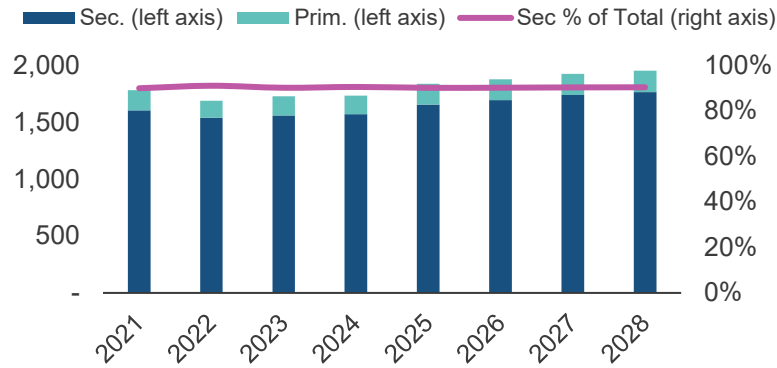
Secondary lead output is likely to decelerate because smaller gains in scrap supply, reflecting softer post-pandemic demand and rising penetration of lithium batteries into applications once dominated by lead. In China, scrap import bans will further reduce feed availability and constrain secondary production more rapidly than in other regions.



Secondary is the key regional driver of production in North America

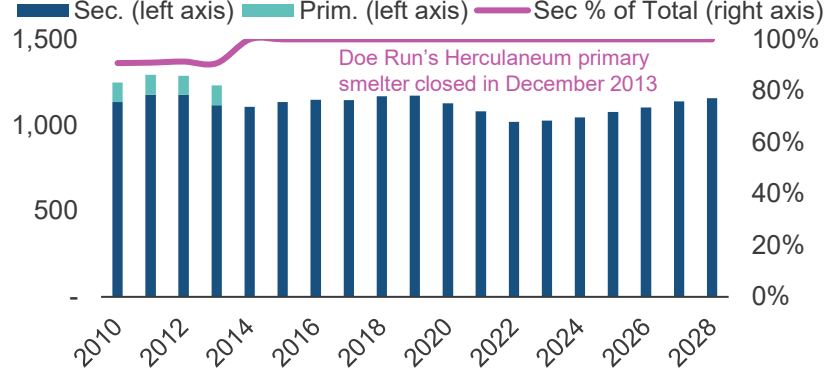
Over 90% of regional output from secondary

Production, N. America ('000t refined lead)



USA has been 100% recycling since 2014

Production, USA ('000t refined lead)



Expansions to spur secondary-led recovery

Regional output fell in the early 2020s due to the closure of Glencore's Belledune (Canada) in 2019 and the onset of covid disrupting scrap supply chains in 2020, with consequent labour and parts shortages constraining smelter output.

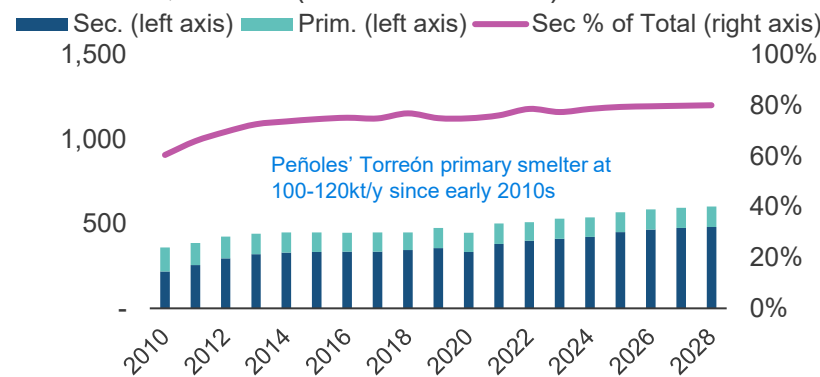
From the 2022 low, output has recovered some of the lost ground, fuelled by a plentiful scrap pool and operational issues returning to typical norms.

There is expected to be limited upside to primary smelters in North America.

Upside to secondary output now appears more likely from debottlenecking and higher utilisation.

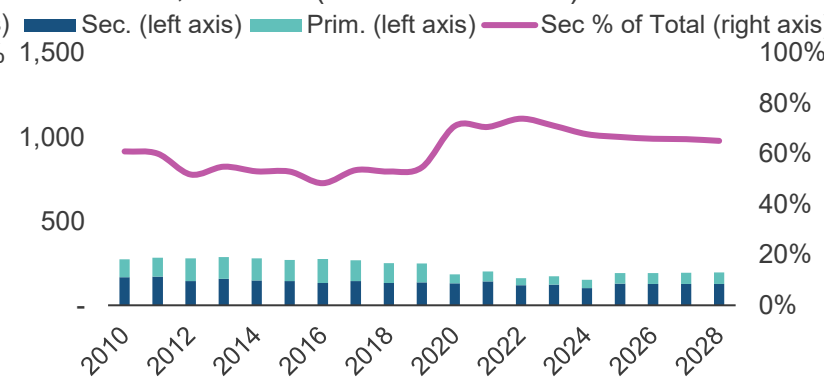
Mexico 80% from recycling, Torreon still running

Production, Mexico ('000t refined lead)



Canada two-thirds from recycling, only Trail left

Production, Canada ('000t refined lead)



DATA: Industry sources, ILZSG, CRU.

TRADE

USMCA, South Korea and Vietnam are the primary trade partners in lead battery value chain

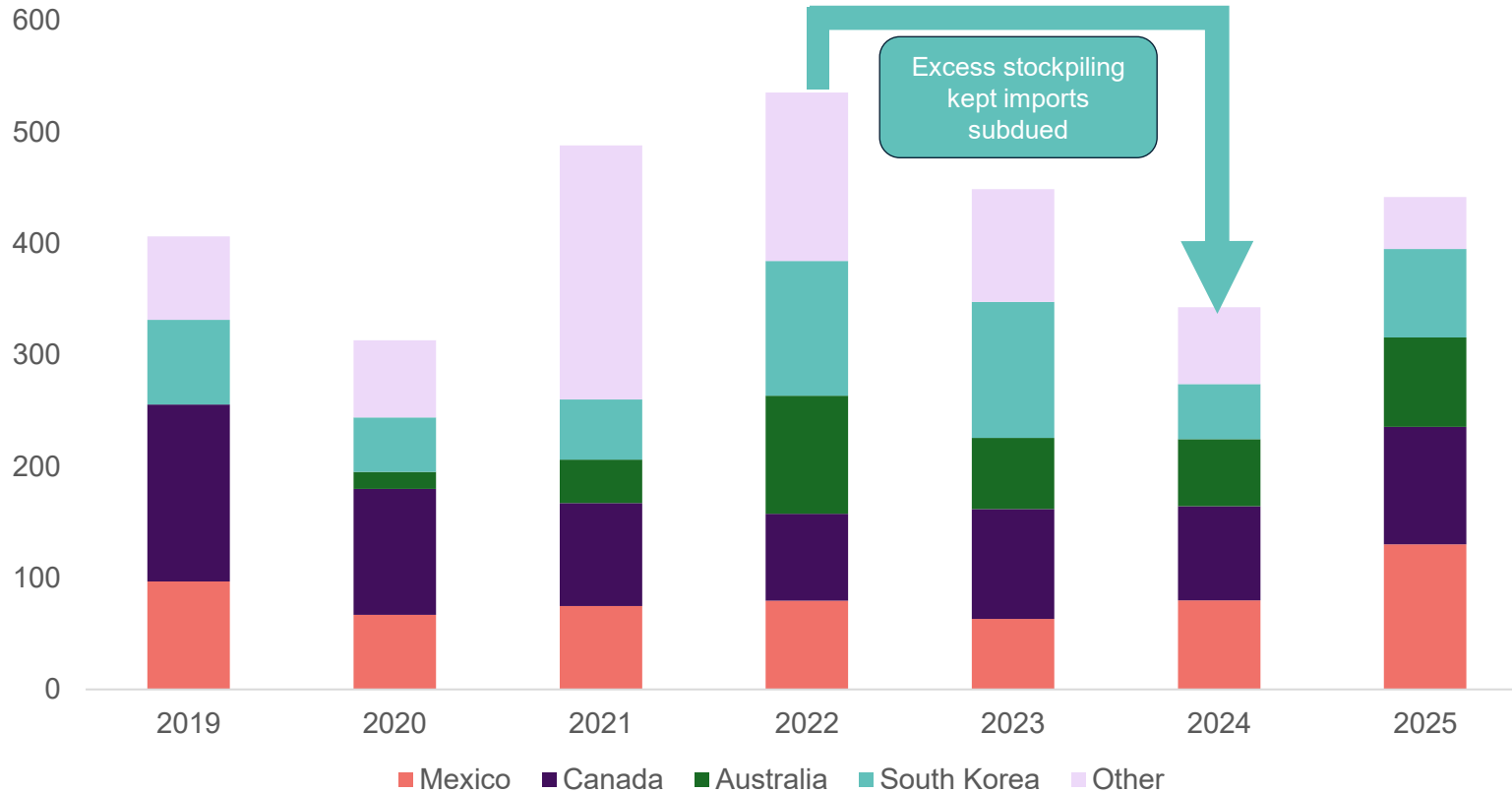
Refined lead imports and scrap lead exports increased in 2025 whilst finished battery imports softened. Mexico remains the primary and growing destination for US lead battery scrap, but South Korea is gaining market share.



US buyers stockpiled refined lead in 2025 as tariff deadline loomed

Import decline reversed sharply in 2025 after three consecutive down years

United States import of refined lead ('000 tonnes)



DATA: Global Trade Tracker. HS Code: 780110

The US tariffs have impacted import demand and supplier mix

Frontloading, ahead of the widely expected tariffs, helped US refined lead imports rebound in 2025, rising ~29% y/y after a 24% decline in 2024.

The frontloading created an artificial peak; H2 imports softened as tariffs took effect and distributors drew down earlier stockpiles. The likely accumulation of inventories does not seem to have been worked off yet. This suggests we may see some further weakness in world trade through 2026 H1. However, the risk should not be exaggerated; even a generous estimate of the overhang would account for less than 1% of world trade. The Supreme Court ruling declaring IEEPA related tariffs imposed by Trump as unlawful further reduces risk.

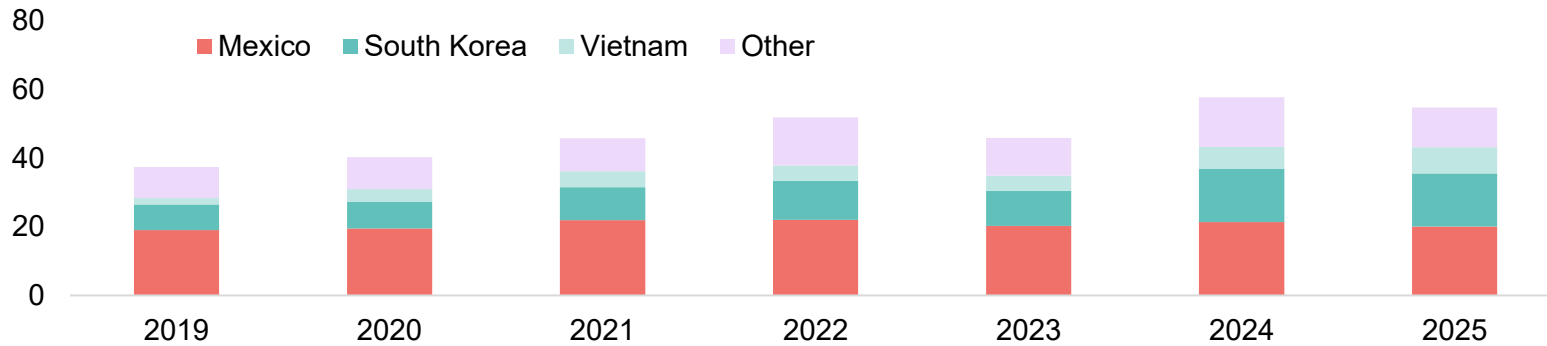
Tariffs have reshaped the sourcing mix: a 10% duty on refined lead and 25% on non-USMCA batteries pushed Mexico and Canada's share to 50% of imports (vs. 40% in 2024).



Frontloading steadied auto battery imports in 2025; tariffs shift the industrial supplier mix

Frontloading supported auto battery imports in 2025

United States Imports of Automotive batteries (Million units)



Tariff-driven trade hits auto and industrial imports

Mexico, South Korea and Vietnam supplied ~75% of US automotive battery imports in 2025, maintaining their dominance as the principal supplying nations.

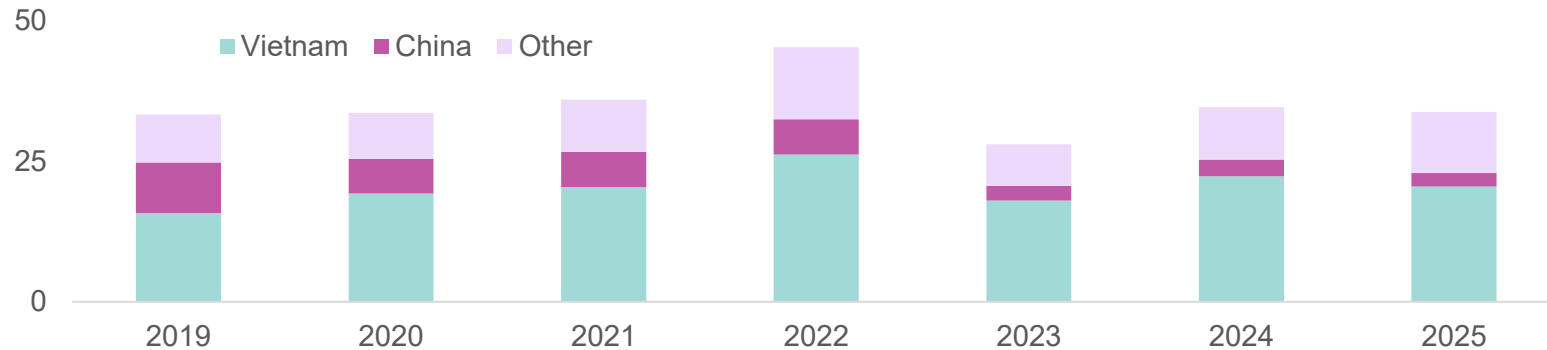
25% auto parts tariffs on non-USMCA origins dented import volumes. Total automotive battery imports fell ~ 5% year-on-year in 2025.

The impact was partially cushioned by two offsetting factors - the exemption of USMCA-compliant parts from Mexico and Canada from the tariff and the front-loading of orders by importers ahead of the tariff implementation date.

China has a limited presence in the US automotive battery market, but the successive Section 301 and fentanyl-related tariffs continue to impact industrial battery imports where Chinese suppliers once held a strong position. South Korea has emerged as one of the beneficiaries of redirected trade flows.

Reliance on Chinese industrial batteries shifts to South Korea, amongst others

United States Imports of industrial batteries (Million units)

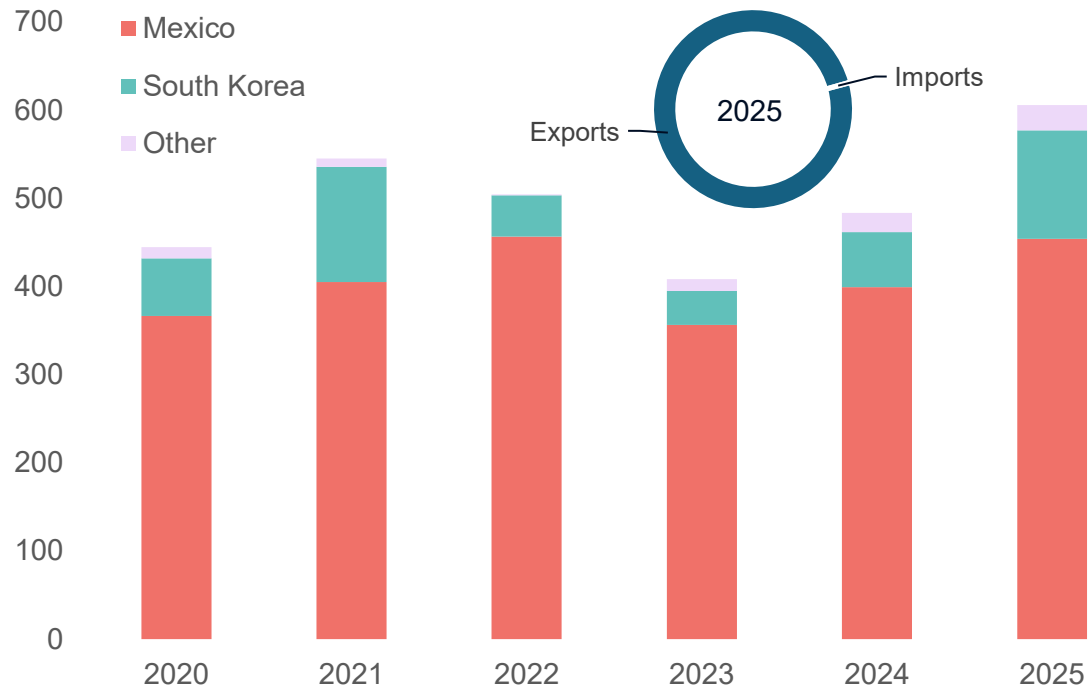


DATA: Global Trade Tracker. HS Code: 850710 & 850720



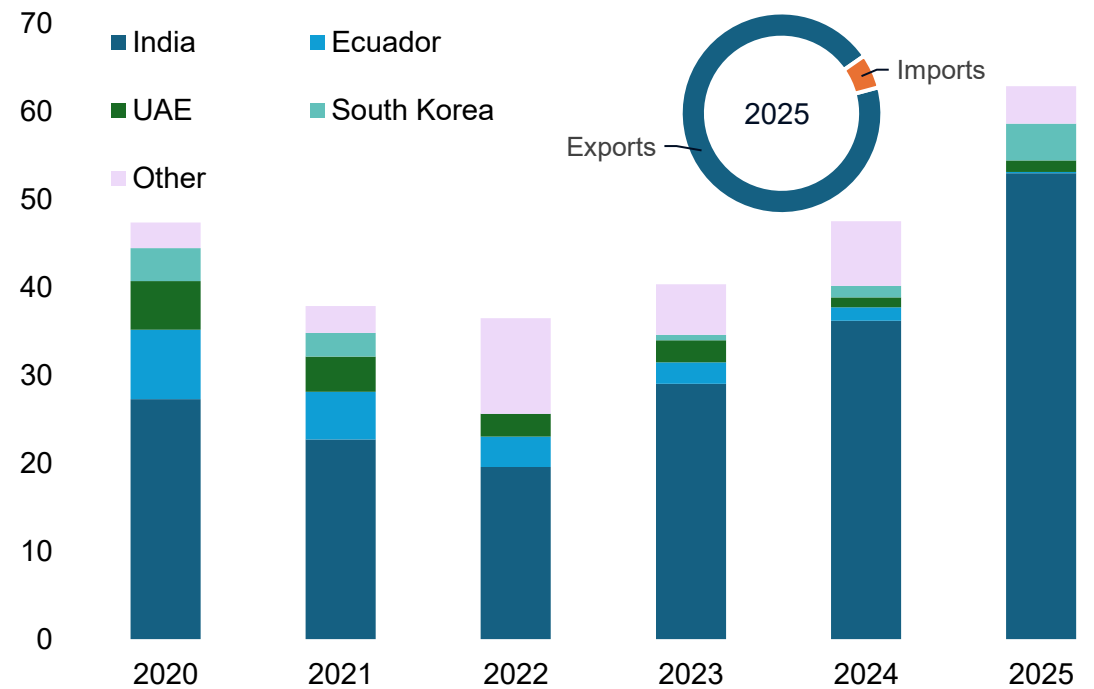
Mexico continues to be the primary destination for scrap US LABs

US Exports of LABs for Recovery of Lead, kt



Mexico continues to be the primary destination for lead recovery from LABs, although South Korea has gained market share, particularly in 2025.

US Exports of Lead Scrap from Batteries, kt



US exports of scrap lead were ~10x smaller than US exports of LABs for lead recovery (left hand chart) in 2025 as domestic lead refining in the US is fed by secondary feedstock.

US exports of scrap lead from batteries to India have been growing consistently since 2023 as Indian domestic demand increased.

DATA: Global Trade Tracker, Left Chart HS Codes: 8548100540, 8549111040. Right Chart HS Codes: 7802000030, 7802000060



PRICES

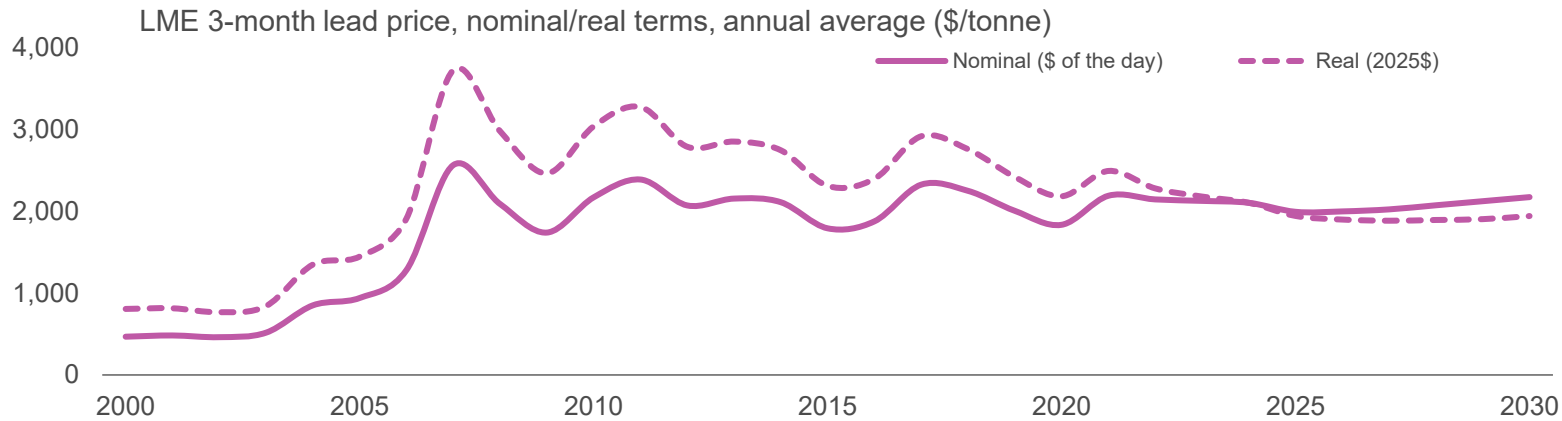
Refined lead prices to remain flat in real terms

Slight nominal increases in refined lead prices are expected in 2026; however, prices are forecast to be flat in real terms. Contract premia, historically trading at a discount to spot, spiked nearly 50% recently as market conditions tightened.

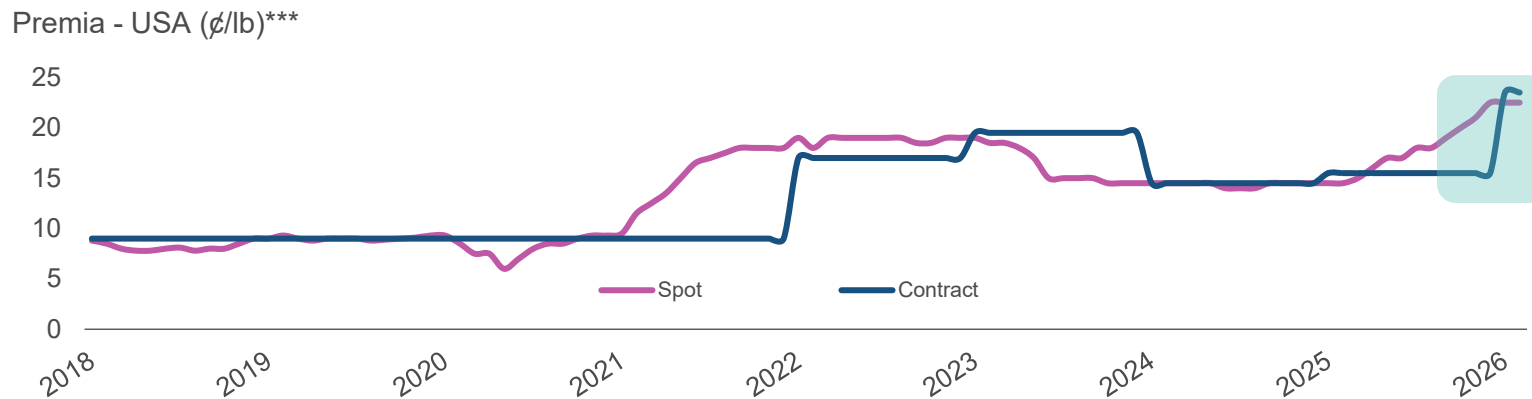


Nominal price to increase marginally from 2026

Real prices decline as nominal prices increase marginally



Spot premia moves above 20 ¢/lb



DATA: LME, CRU. *** Basis is delivered mid-west USA secondary lead.

2026 will mark the first year of nominal price increases

The implementation of tariffs in early April pushed base metal prices lower, including lead as it fell to \$1,847 /t on 9 April.

Since then, lead’s own micro-industry picture has not provided much support to pricing with demand across all major consuming regions being recorded as steady but lackluster.

Stocks are increasingly being made visible on exchanges and investor sentiment on the LME contract is persistently short according to the LME’s Commitment of Traders report.

Tight market conditions have continued to support premia, with spot levels rising above 22 ¢/lb. As a result, the 2026 contract premium has increased sharply to 23.5 ¢/lb, up more than 50% year on year.

Looking ahead, a weaker dollar, a tighter ex-China market, and spillover support from copper-related demand tied to the green energy transition and data center buildout should support prices. However, gains are expected to remain modest in nominal terms and practically flat in real terms.

OTHER METALS

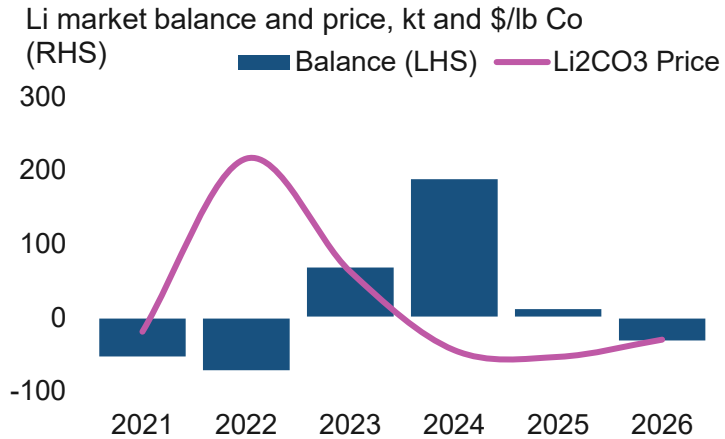
LiB raw material prices distorted

A slew of ESS projects have amplified CAM production and drawn down inventories. Growth in the cathode market and an uptick in ternary demand has caused the sulphate discount to reverse. Cobalt supply continues to tighten as the DRC export ban is replaced by strict quotas, the market balance is expected to fall into deeper deficit in 2026.



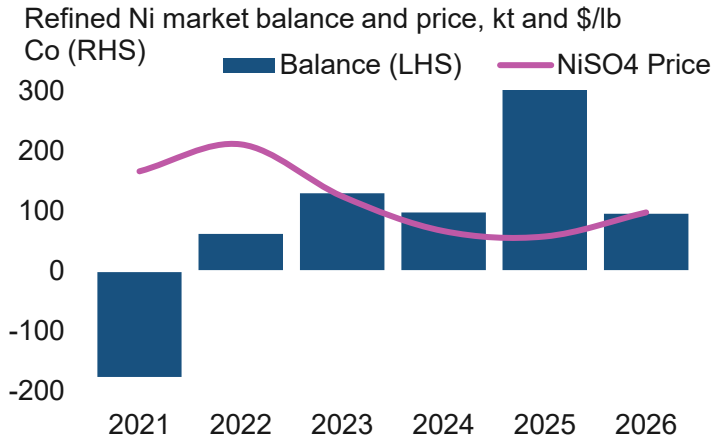
LiB raw material markets are being distorted

Bullwhip Effect fuels bullishness



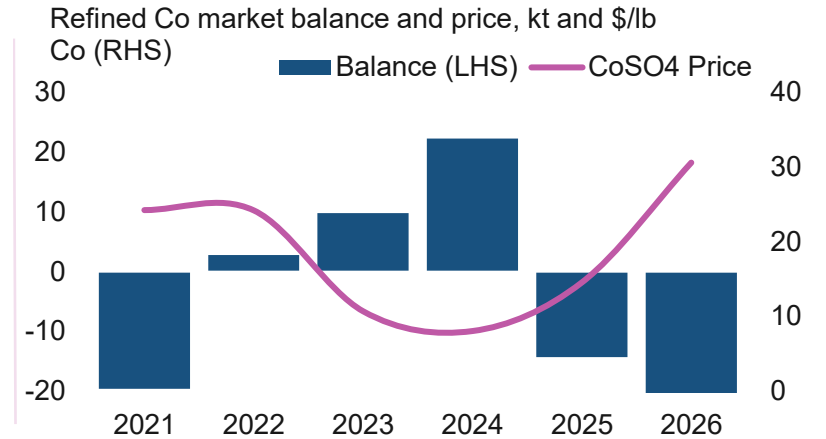
- Soaring ESS installations have amplified CAM production, facilitating rapidly declining inventories. Prices have rallied to their highest level in 17 months, however CATL's announcement that its Jianxiawo mine will restart imminently has tempered expectations
- While strong CAM production is expected to continue, supply growth is set to outpace demand in 2026, pushing the market into a sizeable surplus and forcing miners to consider further curtailments.
- Although curtailments will drive a tight market in 2027, a significant price recovery is unlikely this decade. Primary and secondary supply growth, complimented to curtailed supply restarting will limit the price upside.

MHP-derived cathode floods the market



- Flooding of the cathode market and an uptick in ternary demand has prompted a recent reversal of the sulphate discount. This reduced sulphate-to-cathode conversion, but prices continue their bearish trend regardless.
- Despite rapidly growing supply, the intermediate market will remain tight in 2026, holding MHP payables high. However, tightness is being driven by sulphate-to-cathode conversion, propping up weaker ternary demand.
- The sulphate discount will persist, albeit narrower than previously forecast, settling around \$1,000 /t through to the end of the decade.

DRC quotas lift price outlook



- Supply continues to tighten as the DRC export ban is replaced by strict quotas, with no shipments delivered as of December. Chinese intermediate stocks will reach critical level in 2026 H1. Refiners are scrambling to source alternative feedstocks to hydroxide.
- However, following another rally early next year, intermediate supply will ease as Indonesia MHP and recycling projects ramp up. However, if Indonesia restricts supply, and the DRC maintains its quotas, prices will remain supported through 2030.
- While Co-in-EV demand continues to underwhelm amid policy shifts and the rise of LFP. The resurgence in electronics demand provides some longer-term positivity, with LCO cathode output up by 24%.

DATA: CRU Lithium, Nickel & Cobalt Services. NOTE: All prices are shown in nominal terms, excluding VAT.



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