Bloomberg Intelligence BI

Global Battery Electric Vehicle Outlook

2024

Survival of the Fittest As Tesla and BYD Compete For BEV Supremacy

BYD may overtake **Tesla** in battery electric vehicle sales this year as their intensifying rivalry drives down BEV prices, residual values and profits. BEV pure plays have burnt some €660 billion of market capitalization as Western demand stalls, bankrupting Fisker, and consolidation looms. This will prolong combustion-engine profit at legacy automakers such as **VW, GM, Mercedes** and **Ford**, and may fuel further buybacks or M&A.

- **Tesla May Lose Pole Position:** Tesla could cede its annual BEV sales crown in 2024, though BYD's reign might be short-lived due to US and EU import tariffs limiting export opportunities beyond Asia and emerging markets.
- **ICE to Dominate Profit Through 2030:** Internal combustion engines, including hybrids, will remain the mainstay of industry profit to 2030 as legacy automakers reinvest ICE cash flow in alternative powertrains and autonomous driving.
- **China to Extend BEV Sales Lead**: 34% of China car buyers in our latest survey plan to buy a BEV as their next car, up from 23% in 2023, vs. 18% for European respondents (16%) and 9% in the US (8%).

Featured in This Report: Bloomberg Intelligence's proprietary profit bridges benchmark automakers' profitability by powertrain. They're available on the Terminal at BI AUTMG <GO>, along with the bi-annual BI passenger vehicle-buying surveys in Europe, China, the US and Middle East, and BI Global Product Launch Database.

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More detailed analysis and interactive graphics are available on the Bloomberg Terminal

Section 1. Executive Summary

2.7 Million
Teslas may be sold annually in 2027, helped by new Model 2

51%
of cars will still have combustion engines in 2030, from 84% in 2023

$1.6 Trillion
Charging-infrastructure investment needed by 2050 to support BEV sales, BNEF says

BEV, Tesla Appeal Cool as Drivers, Automakers Favor ICE

BEV demand has stalled in the West while strong growth continues in China, though it's being fueled by unsustainable pricing and leading to further exits and consolidation. Only the fittest BEV pure plays will survive, and punitive tariffs on BEVs imported from China distort global competition further. Meanwhile, potential government changes may delay the phaseout of internal combustion engines, with one-third of respondents in our BI buyers survey opposed to the EU's ICE ban from 2035. That's a drag for Tesla and BYD as they fight for BEV supremacy -- and for all pure plays -- and extends ICE profitability and cash flow for legacy automakers to reinvest in new tech, next-generation BEVs or M&A. Toyota's bet on hybrids has been rewarded with an 80% share price surge since 2023, and its 30% global BEV 2030 sales mix forecast matches our own.

Key Research Topics

- **BEV Appeal Deflates:** Automakers have scaled back BEV targets and capex as demand stalls and reverses in some markets. The exception is China, where BYD leads a market driven by intense price competition. Supply in Western markets is often limited given the low margin or unprofitable nature of BEVs, which only changes when next gen scalable platforms with enhanced battery tech are launched in 2026-27. Tesla's longer-term success relies on a cheap high-volume Model 2, yet to be unveiled.
- **Global ICE Mix Keeps Largest Share:** The global BEV sales mix is expected to reach just 15% by 2025 from last year's 11%, then double to 31% in 2030, with China remaining the dominant region, Europe stays second and the US mix will remain below 10% in 2024. Of all cars (including hybrids and plug-in hybrids), 69% will still have combustion engines in 2030, boosting VW, GM, Mercedes, BMW, Porsche, Stellantis and Ford's outlook.
- **China Sets BEV Pace:** China's fading economic outlook won't slow mass adoption of BEVs as prices fall and new models spur demand, keeping BEVs on track for 30% of sales by 2025 vs. 23% in 2023. Europe's BEV share may not exceed 23% until 2026. The US presidential election will likely affect its BEV path, while Japan trails due to its hybrid preference.
- **Cheaper Batteries Driven by Overcapacity:** Global public charging infrastructure is growing but -- with only 4 million public connectors as of 2023, almost 70% in China -- is failing to keep pace with BEV sales and needs $1.6 trillion in cumulative investment by 2050, according to BNEF. Batteries as a percentage of a total build cost will continue to decline as production overcapacity increases.

Performance and Valuation

Global automaker shares are up 7% from a near-term low in November, as legacy manufacturers benefit from a cyclical rally, the BEV slowdown and strong free cash flow. However, the BI Global Autos Valuation index declined after 1Q results, highlighting pricing risk. The group's forward P/E stands at 8.6x, with Japanese stocks at a premium over peers and Toyota at 9.6x 2025 P/E amid strong demand and currency tailwinds, vs. 4.4x for volume brands in Europe and 5.7x in the US.

Section 2. Catalysts to Watch

Powertrain-Mix and Policymaker Changes Possible

Automakers have rolled back BEV targets and capital outlays as demand falters, as predicted by our August 2023 BI car-buying survey, and their monthly powertrain-mix sales need to be closely scrutinized to establish the growth profile of BEVs. Pricing will be a key focus for investors, with further discounts needed to underpin growth in all regions, while changes in policymakers could have significant effects following EU, French, UK and US elections, and US and EU import tariffs will restrict price competition.

Critical Milestones:

- **July/August:** Automakers' 1H results and full-year guidance updates, including BEV sales mix. Tesla already reported its first sequential drop in 2Q deliveries
- **Monthly:** Monthly BEV sales in China and the EU, and quarterly US sales, will be closely scrutinized
- **November 2024:** Following US elections, a new president could change EV targets and relax corporate average fuel economy targets
- **4Q24:** Potential reevaluation of EU emission legislation following possible changes of policymakers in France and Holland, together with lobbying from some automakers for leniency on 2025 CO2 targets
- **1Q25:** Full-year 2024 results, with initial guidance for 2025 margins and BEV sales mix
- **2025:** New EU emission laws will be subject to tougher Worldwide Harmonized Light Vehicle Test Procedure regulations from 2025, replacing New European Driving Cycle rules and introducing a new 93.6g/km limit. adjusted for the average mass of a brand's cars
- **2025-26:** China will reduce its sales tax exemption on BEVs by 50% in 2026 likely pulling sales forward to 2025

Section 3. BI Profit Bridge, Buyer Surveys

Car Buyers, Automakers Favor Internal Combustion

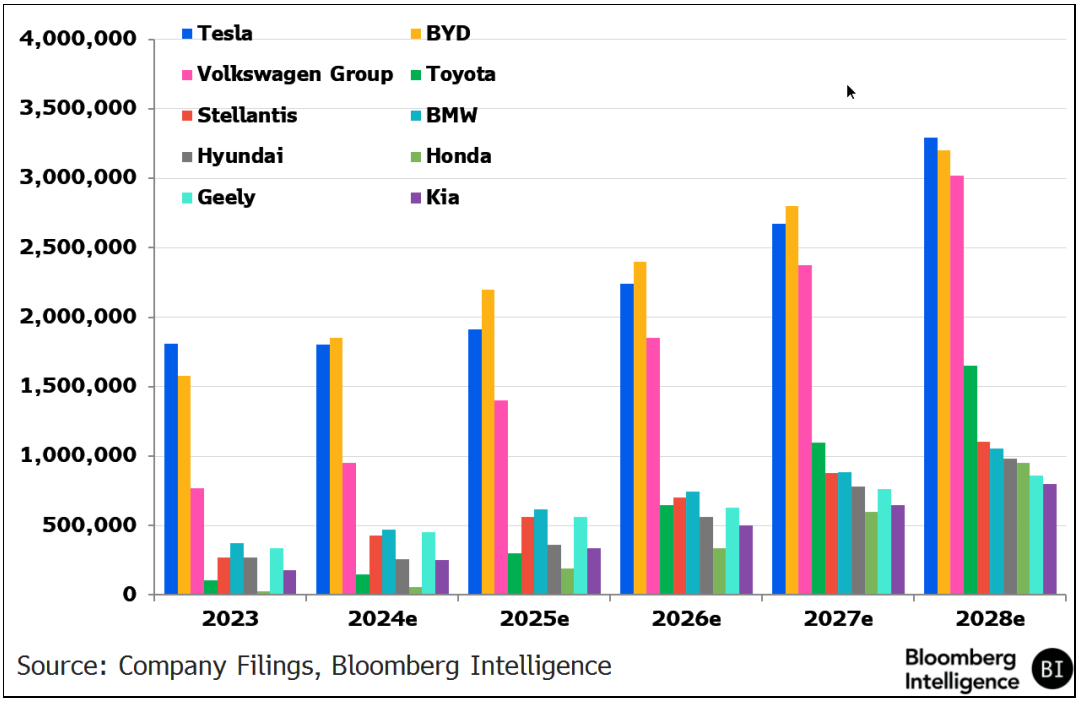
Reduced BEV goals and capital spending benefits VW, GM, Ford, Mercedes, Porsche and Stellantis, while Toyota's skepticism on BEVs and bet on hybrids makes it the biggest winner. Production flexibility between different powertrains is key, with profitability and the consumer ultimately deciding on the sales mix beyond what emission law requires. Our BI company profit bridges by product scenario for the major global automakers assume that ICE-powered vehicles, including hybrids, will remain the dominant profit driver even out to 2030.

3.1 Elections Could Put ICE Phaseout Plans Under Review

Our previous medium-term forecasts already factored this in and remain largely unchanged though we've trimmed 2030 expectations with a downside risk as new governments after European and US elections could change policies and delay the phase out of ICE. 68% of respondents in our EU survey disagree with a 2035 ban of ICE vehicles. Hybrids are the favored powertrain and now have longevity, though plug-ins come at a significant premium to ICE outside China.

BI **Tesla losing BEV leadership to BYD; VW plays catch up**

Figure 1: BEV Volume by Automaker



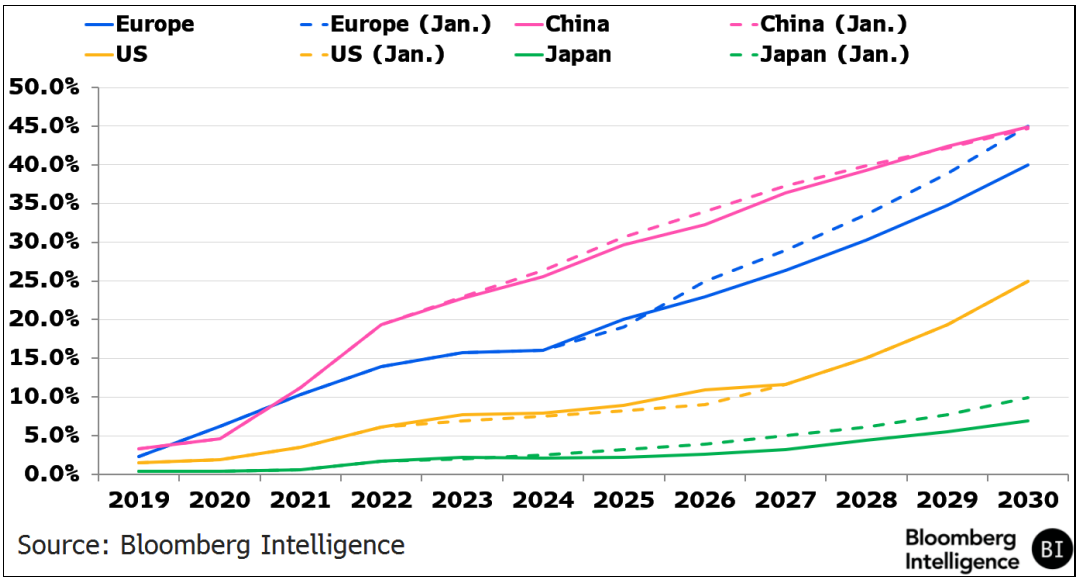
Tesla's original 50% annual growth target is in tatters and despite new capacity and competitive pricing we see it losing its BEV global annual sales crown to BYD in 2024 on a lack of new models. Tesla's longer-term success relies on a cheap high-volume Model 2 which is yet to be unveiled with robotaxi taking priority. BYD's lead may be short lived with limited export

opportunities beyond Asia and emerging markets, given US and EU import tariffs with 85% of BEV sales in China vs. one-third for Tesla. Though VW is no longer a short-term challenger its next-gen platforms using acquired technology may provide a boost from 2026-27. VW Group enjoys a leading 22% BEV market share in Europe, but this dominance needs to be replicated in other regions, particularly China, where its BEV share was only 4% vs. 13% overall.

The global BEV sales mix is anticipated to reach 15% by 2025 from last year's 11%, before doubling to 31% in 2030, with China remaining the dominant region. Europe remains the no. 2 with an effectively flat 2024 market share of 16% rising to 20% in 2025 on more-stringent EU emission legislation. The US mix will remain below 10% in 2024 with its trajectory likely dependent on the November election. Japan continues to lag with domestic brands preferring hybrid technology and we predict a BEV market share of only 7% by 2030 vs. 2% in 2023.

We now see a 40% 2030 European BEV mix (vs. 45% in January) as BEV prices remain elevated, consumers prefer hybrids and low profitability meaning automakers have pulled back from ambitious targets and legacy automakers will reinvest in ICE and PHEVs (plug-in hybrids) which now have longevity. Stricter EU emission rules in 2025 should provide a boost though some legacy automakers are lobbying for leniency as a reduction in government subsidies and lack of public charging infrastructure are making these targets more difficult to achieve. Our long-term BEV mix estimates are largely unchanged for China and the US since our January report, while we've lowered estimates for Japan (to 7% from 10%) offset by higher mix of PHEV and HEVs.

Figure 2: BI Estimate Changes on BEV Mix by Region



China is regarded as a front runner of automotive trends, yet global automakers will be hoping that its intensively competitive BEV-sales environment won't occur elsewhere. In a market where discounting is rife, such an unsustainable business model may either wipe out smaller brands or drive a consolidation whereby only a select few -- like BYD -- will flourish. BEVs are often priced below ICEs in China, resulting in sustained losses for new entrants and local brands, despite subsidized land and plants, and low energy tariffs, wages and battery costs. That contrasts with Europe, where BEVs sell at a 36% premium to ICEs on average, though discounts are rising.

China leads on screens, driver interfaces, connectivity, speech recognition and a comprehensive software offering as standard.

BI's company profit bridges can be switched between the standard buckets often reported by companies and products that divides Ebit between the various powertrain, software and CO2-regulatory products, and our findings show ICE vehicles will remain the dominant industry profit driver in 2025. Even by 2030, we anticipate ICE-based powertrains, which include hybrids, to dominate industry earnings given we don't expect a more comprehensive ramp-up of next-generation BEV platforms, with proprietary software and enhanced-battery technology, until the end of the decade. We anticipate software will become a meaningful profit driver by 2030.

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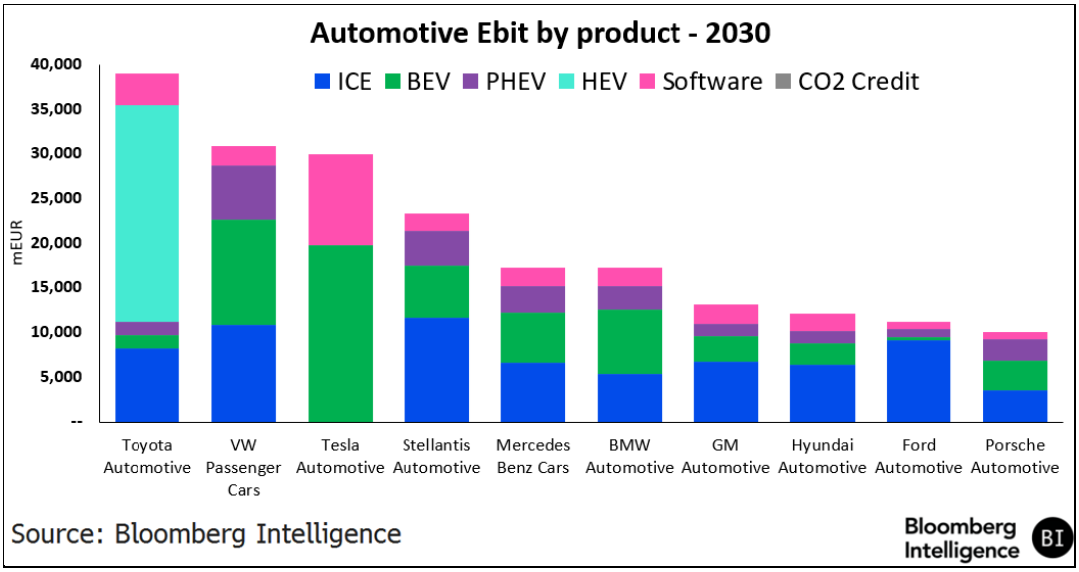
Industry profit by product dominated by ICE in 2030

Figure 3: Ebit by Product/Powertrain

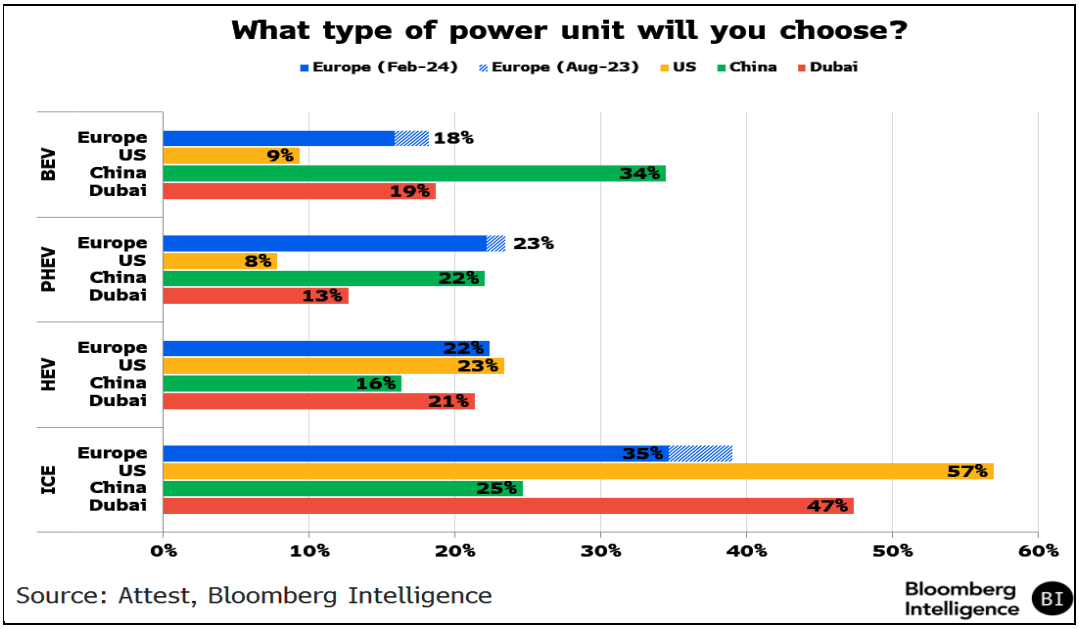


The timeline for lower BEV costs and margins to close in on ICE vehicles has been pushed back at least 24 months to 2027 to coincide with scalable next-gen platforms, new-battery technology and digitalization that will make BEVs more affordable and desirable to customers. We expect BEVs to make up 12% of total US auto sales by 2026, with about 1.9 million units sold vs. about 7.6% in 2023, at about 1.2 million.

EV makers with battery production may see 10% lower costs for vehicles produced in the US through 2026, thanks to the IRA's battery tax credit, we calculate. Battery factories, led by GM's Ultium plants, are expected to expand production after 2025, as it takes 2-3 years for such facilities to ramp up. A slew of affordable EV models such as Tesla's compact Model 2, GM's revamped Bolt, and Volvo's EX30, could lift penetration starting in 2026 as more legacy carmakers turn positive on BEV production at scale.

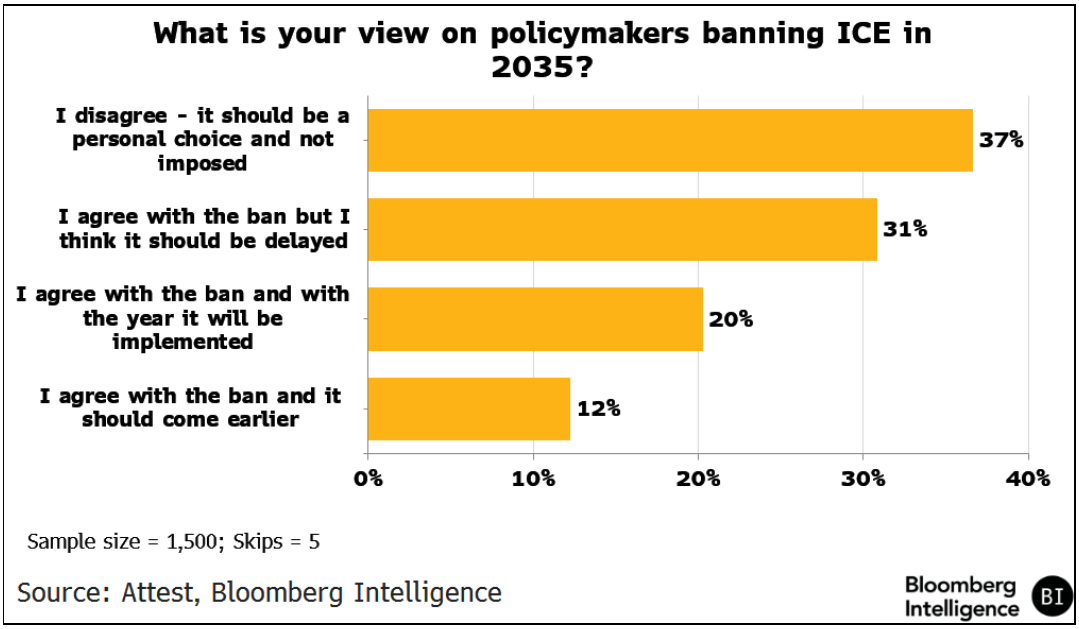
BI surveys: China may extend BEV lead vs. Europe and US.

Figure 4: Customer Attitudes in Survey



As per our BI buyers surveys, consumers continue to highlight high prices, range anxiety and a lack of public-charging infrastructure as key reasons to avoid BEVs, which may lead to delays in the phaseout of combustion engines to garner support among the electorate as various governments seek reelection in 2024. Our survey also revealed that two-thirds of European respondents disagree with the banning of ICE vehicles from 2035. This follows growing scrutiny over the cradle-to-grave carbon footprint of BEVs, and alternatives -- such as hydrogen and e-fuels that can be used in ICE vehicles -- may attract support.

Figure 5: Survey Question - Germany, UK, France, Italy, Spain

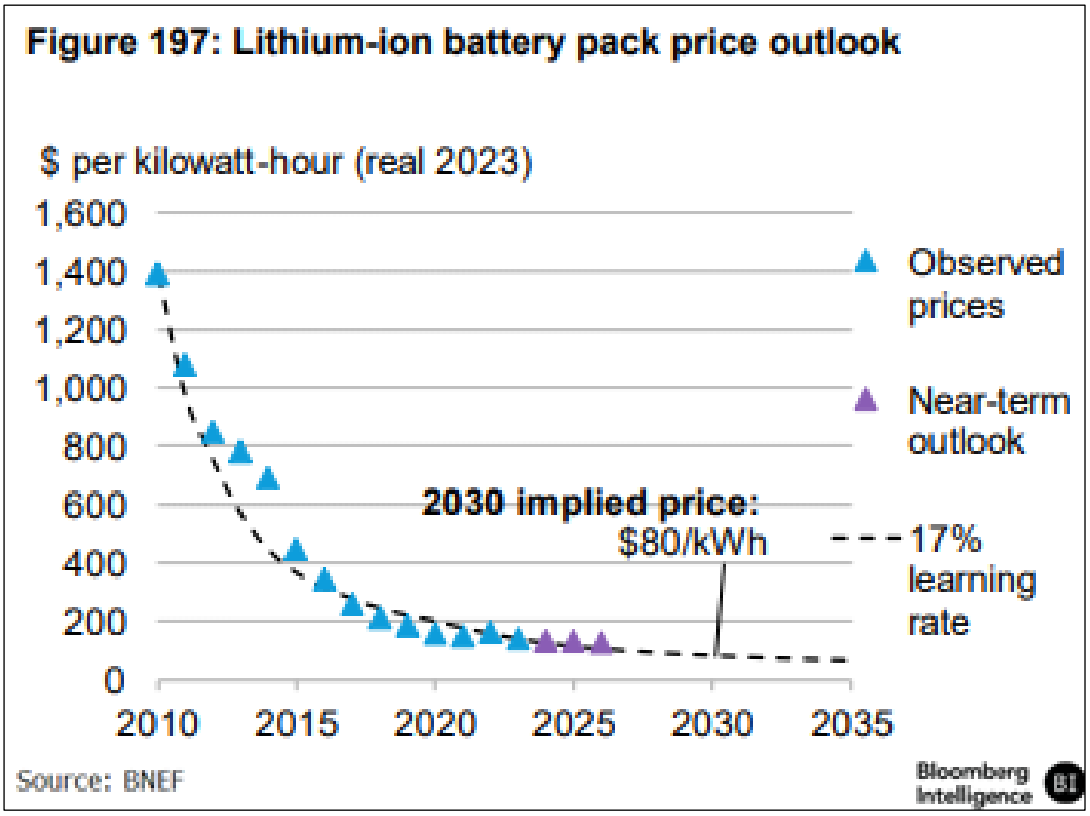


3.2 Battery Prices Dip With LFP Switch as Overcapacity Builds

Battery price and density drive BEV growth and profitability and a huge ramp-up in capacity and shift to cheaper lithium-ion phosphate (LFP) batteries, along with slower take up of BEVs, will help reduce average cell prices following commodity prices fall. However, lack of public charging infrastructure, a key concern of respondents in our BI new car buyers survey, will take time to address and is a major barrier to adoption.

The price of a battery pack resumed its downward trajectory in 2023, falling by 14% to $139 per kWh, after a 7% increase in 2022 amid raw material inflation, and is forecast to drop to $80 kWh by 2030, based on BNEF research. The easing of input costs likely continues beyond 2024 as new supply increases and medium-term BEV demand runs below expectations. The battery can account for about 30-40% of the cost of a BEV, and price deflation is therefore crucial for costs to match those of traditional ICE vehicles. Below $100 is seen as the level to achieve price parity vs. ICE, potentially by 2027.

Figure 6: Lithium-Ion Battery-Pack Price Outlook $/kWh



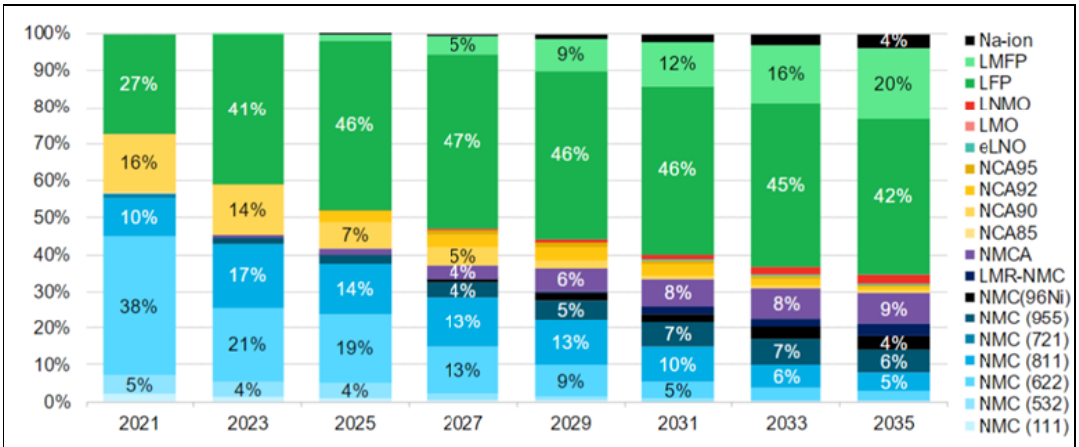
Lithium-ion battery price should drop over the next 5 years, commodity prices permitting and as cell manufacturers build larger plants leading to overcapacity. CATL and BYD are constructing plants in China with 32 GWh annual capacity.

Automakers' lithium-ion battery chemistry preferences have shifted over recent years toward LFP given recent spikes in commodity prices, and LFP is key for the rollout of lower-cost BEVs.

Performance chemistry requires high-energy densities and fast charging, which have a high nickel content (absent from LFP), and include NMC (nickel manganese cobalt oxide), NCA (nickel cobalt aluminum oxide) type batteries.

A lithium-ion BEV has three major cathode chemistry groups: NMC, NCA and LFP, with varying density trends. CATL's new Shenxing Plus LFP offers a range of 1,000 km on a full charge and 10 minutes charge time for 600 km. BYD's next-gen Blade has an energy density of 190Wh/kg.

Figure 7: Evolution of Cathode Chemistry for PVs



Source: BloombergNEF. Note: Na-ion refers to sodium ion; LMFP is lithium manganese iron phosphate; LFP is lithium iron phosphate; LNMO is lithium nickel manganese oxide; LMO is lithium manganese oxide; LNO is lithium nickel oxide; NCA is nickel cobalt aluminum oxide; NMCA is nickel manganese cobalt aluminum oxide; LMR is lithium- and manganese-rich; NMC is nickel manganese cobalt oxide. See Appendix A for glossary of battery chemistries.

Source: BNEF

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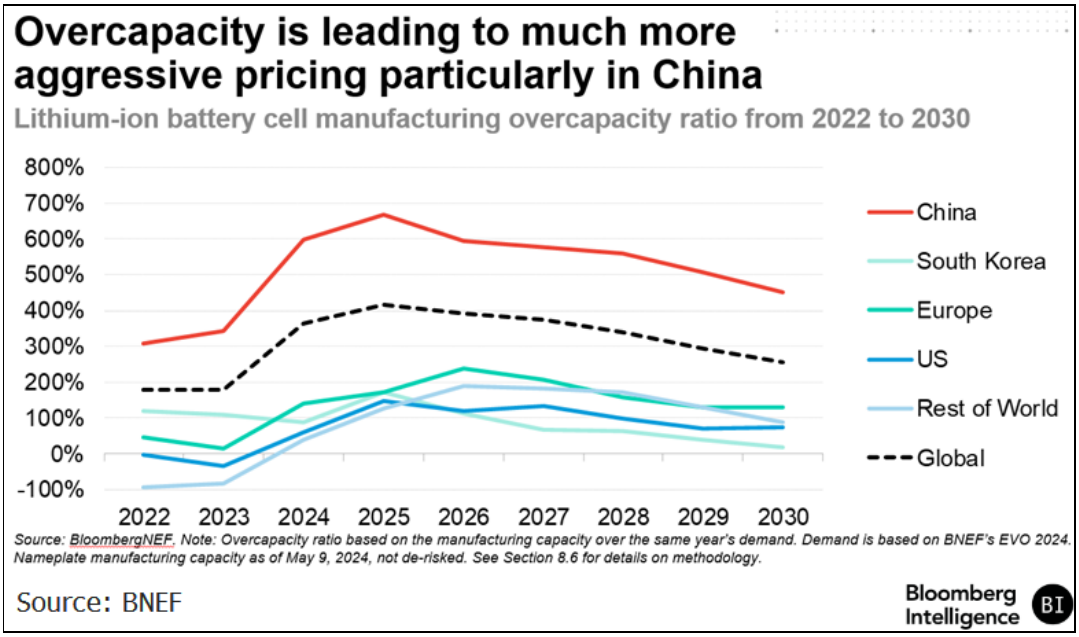
Shifting to cheaper lithium-ion phosphate batteries reduces input costs while overcapacity is also helping lower average cell prices when LFP accounts for 65% of battery chemistry in 2035 vs. 27% in 2021, according to BNEF analysis. Cell-manufacturing overcapacity -- forecast by BNEF to approach 200% in Europe and almost 700% in China in 2025 -- has arisen as global demand falls below expectations with legacy and most BEV pure-play automakers pulling back on overambitious targets.

Tesla's target of manufacturing 3 terawatt (TWh) of lithium-ion batteries by 2030 goal appears overly optimistic as BNEF projects that total road-transport demand is only projected to increase to about 3.2 TWh hours by then from 950 Gwh in 2023. VW forecasts its own fleet will require at least 0.15 TWh a year by 2025 and is pulling back on battery manufacturing investments along with Mercedes and Stellantis. The key components of a battery include graphite, nickel, aluminum, lithium, cobalt and manganese. Battery-density enhancement is crucial and BNEF calculates average BEV pack density has increased 117% since 2020 to 194 watt-hour per kg.

The cathode is the terminal within a battery through which the electric current discharges into the anode and is one of the largest component costs of a cell.

Battery overcapacity to hit 700% in China as demand misses expectations

Figure 8: Battery Cell Overcapacity by Region



Battery price and density will be key drivers of growth and profitability for automakers, with a significant capacity boost required to meet BEV sales targets and ensure economies of scale push costs lower. The scale is huge, with lithium-ion battery capacity set to increase to 9.4 terawatt an hour per year by 2026, according to BNEF, almost 4x the commissioned capacity in 2023.

As manufacturers build larger plants, we see lithium-ion battery prices dropping further in the next five years. Renault anticipates battery cost to drop by 50% by 2026 and by 65% by 2028 to as low as $75/kWh.

The price parity of a BEV will be a tipping point for production to catch up with ICE. Batteries as a percentage of a total build cost will continue to decline, with price parity-to-gas engines likely coming by 2026 for most segments in Europe, according to BNEF, though will take time to be rolled out across all model platforms. At that point the battery should be less than 20% of the pretax price, compared with about 30-40% now. Prices of gas-powered vehicles are expected to rise given additional content required to meet onerous new emission legislation.

Price parity is based on the all-in BEV cost vs. gas-powered vehicles. A potential slow down in BEV adoption rate and tariffs on BEV imports from China imposed by the US and Europe may delay price parity to 2027, we believe, when next gen platforms will come on line.

3.3 Rapid Charging Infrastructure Expansion Required

The widespread adoption of EVs will require exponentially more charging points, both public and at home, requiring about $1.6 trillion of cumulative investment by 2050, according to BNEF, as per their Economic Transition Scenario (ETS) based on current policies. Faster charging times are coming but are reliant on rapid chargers that are in short supply but necessary to extend the base away from commuting and local journeys. The need for infrastructure is recognized by both

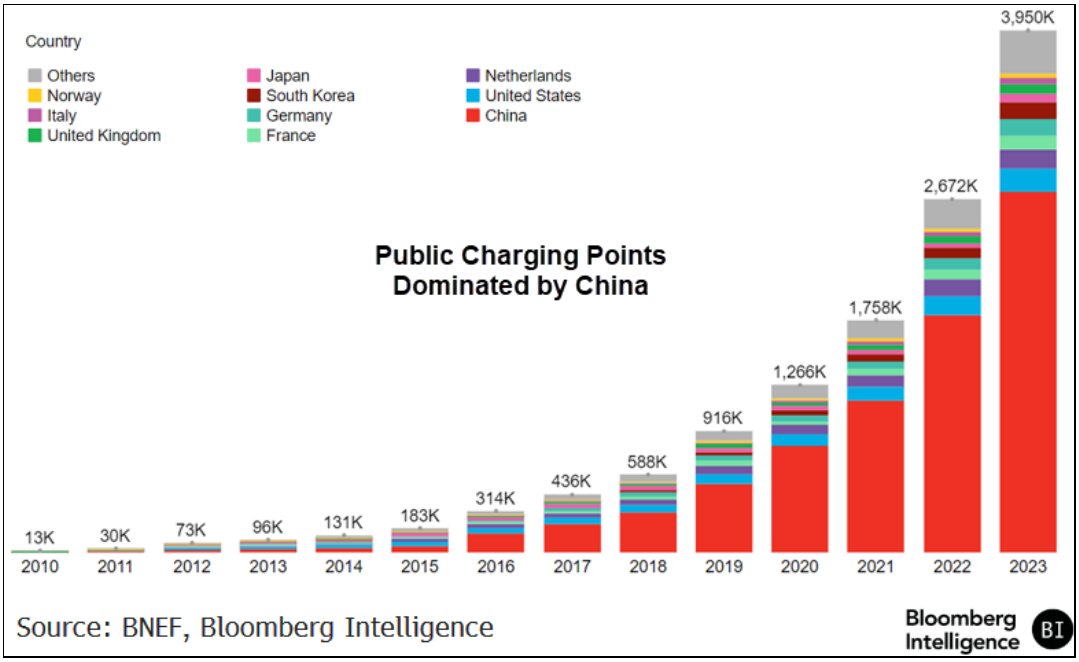
industry and governments and will accelerate as more countries make bold statements about banning of pure ICE vehicles by a set date, as with UK and EU by 2035.

Slowing BEV adoption may lead government and automakers to push back their targets as well as investments in charging infrastructure.

While the ability to recharge a car's batteries is a key factor in a consumer's decision to opt for a BEV, public-charging points remain limited, even as governments and cities move toward bans on ICE vehicles. The 4 million public-charging points globally are tiny when compared with the number of gas-station pumps, with fast-charging even scarcer. Given the need for subsidies to build infrastructure costing about to $1.6 trillion by 2050, it will largely be down to policymakers with the EU setting a target to deploy charging pools with at least a 400 kW output every 60 km by 2026 along core TEN-T network.

Ionity, a joint venture of BMW, Ford, Hyundai, Mercedes and VW has installed more than 600 charging stations and about 3,900 high power charging points and plans to expand to almost 7,000 points in Europe by 2025.

Figure 9: Global Public Charging Infrastructure



Global charging infrastructure is growing rapidly, but -- with only 4 million public connectors as of 2023, of which almost 70% are in China -- it's failing to keep pace with BEV sales and requires $1.6 trillion in cumulative investment by 2050, according to BNEF. That's why charging and range anxiety remain at the top of consumers' concerns and these issues are unlikely to be solved in the medium term. In Europe, 64% of BEVs registered this year have ranges of less than 500 km, according to JATO.

BEVs being too expensive also tops concerns for European, US and Dubai drivers as BEVs are priced at significant premiums compared to ICE -- about 35% in Europe, according to JATO.

According to ACEA, 1.2 million chargers are needed per year by 2030 if EU countries are to reach their regulatory target of a 55% reduction in passenger car CO2 emissions, which is 8 times the latest annual installation rate. Charging infrastructure investment has significantly lagged the meteoric rise in electric vehicle sales. Since 2017, battery electric cars increased 18-fold, but the number of public chargers only grew 6 times. The European Commission estimates that to meet climate targets, 3.5 million charging points should be installed by 2030, or about 410,000 per year vs. 150,000 installed in 2023.

Section 4. Competitive Landscape

China to Maintain BEV Sales Lead

BEV sales will expand in 2024 though growth is decelerating with China maintaining its lead, aided by fiercely competitive pricing while the sales mix stalls in some markets and even shifts into reverse in Germany. We estimate a global BEV market share of 15% by 2025 from last year's 11%, only doubling to 31% in 2030, below BNEF expectations but matching Toyota's skepticism. The US mix will remain below 10% this year, with its trajectory likely dependent on the November election. Japan continues to lag with domestic brands preferring hybrid technology.

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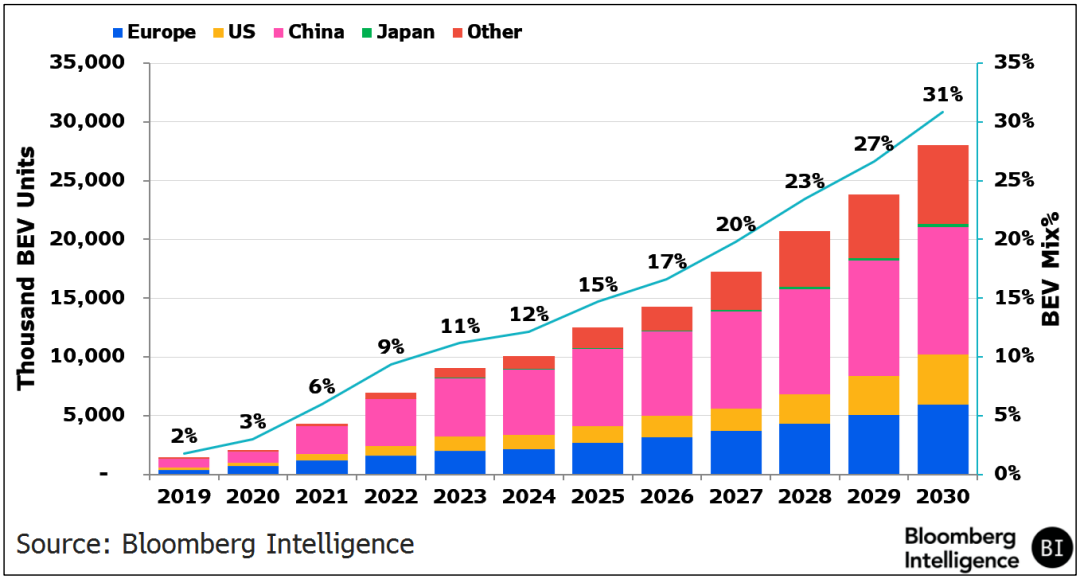
Global BEV mix of 15% in 2025 and 31% in 2030

Figure 10: Global BEV Sales (LHS), BEV Sales Mix (RHS)



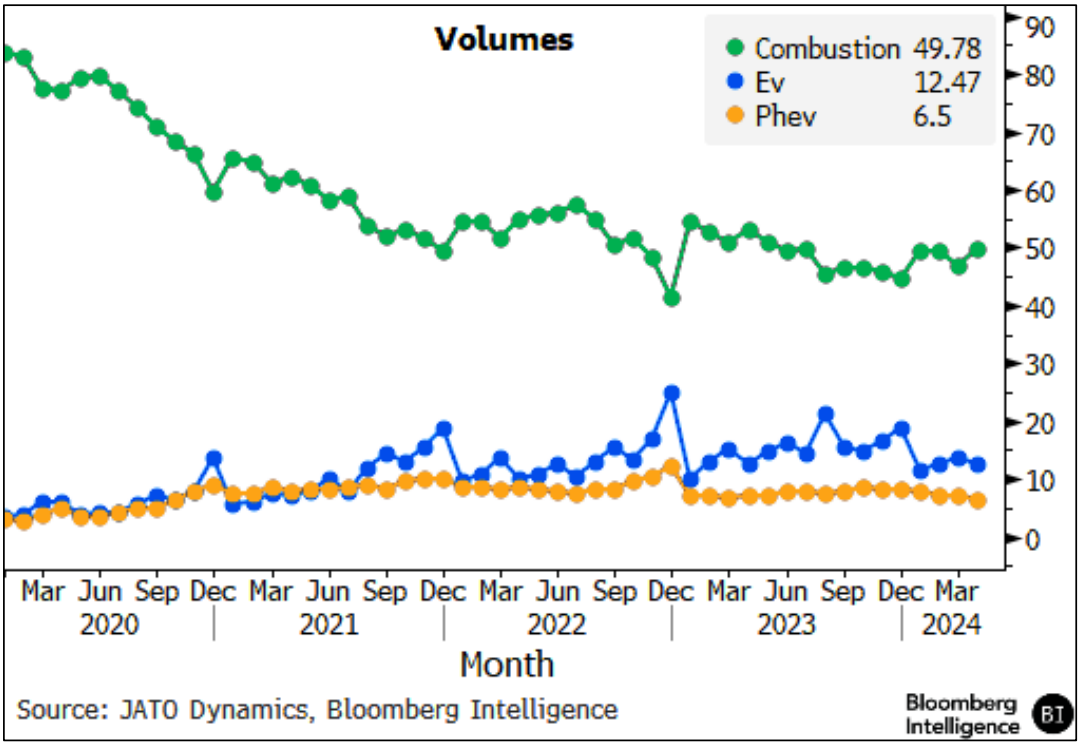
4.1 Europe in Second Place as BEV Demand Stalls

European BEV market share is flat lining on consumer apathy, as highlighted in our BI buyers survey, and restricted supply as legacy automakers lack a profit incentive to sell more BEVs than needed to meet emission laws. New import tariffs on China-made BEVs may limit price declines as Tesla is pressured to cut prices to sell its new German output.

BEVs, on average, are priced about 35% above internal-combustion-engine vehicles (ICE) in Europe and that premium may remain sticky following newly imposed EU import tariffs on BEVs made in China, just as consumer enthusiasm for BEVs wane, meaning a flattish 2024 market share of about 16%. As a result, legacy automakers have reduced ambitious BEV targets and hope that pricing remains robust aided by the tariffs. Volkswagen now targets a 9-11% BEV mix in 2024 vs. 8.3% last year, well below previous expectations. Mercedes Cars expects a flat 19-21% xEV (plug-ins) share and no longer seeks a 50% xEV mix by 2025. Porsche guides for a 13-15% mix in 2024

and is unlikely to achieve 2025 BEV goals. BMW leads German peers with 15% BEV mix in 2023 and retains its 50% BEV mix ambition by 2030.

Figure 11: Europe - Powertrain Mix (%)



The transition to BEVs is slowing as high prices, declining subsidies (included in our overall discount calculation) and reduced corporate tax incentives deter customers. Tesla's price cuts have translated into lower average BEV prices industrywide in Europe, but the premium vs. ICE models remained high at about 35% in 1Q. That starkly contrasts with China, where intense competition means BEVs are often cheaper than their ICE equivalents. Average discounts for EVs were down from 2023, primarily due to lower government subsidies, though BEV offers remained elevated at about 13% in May.

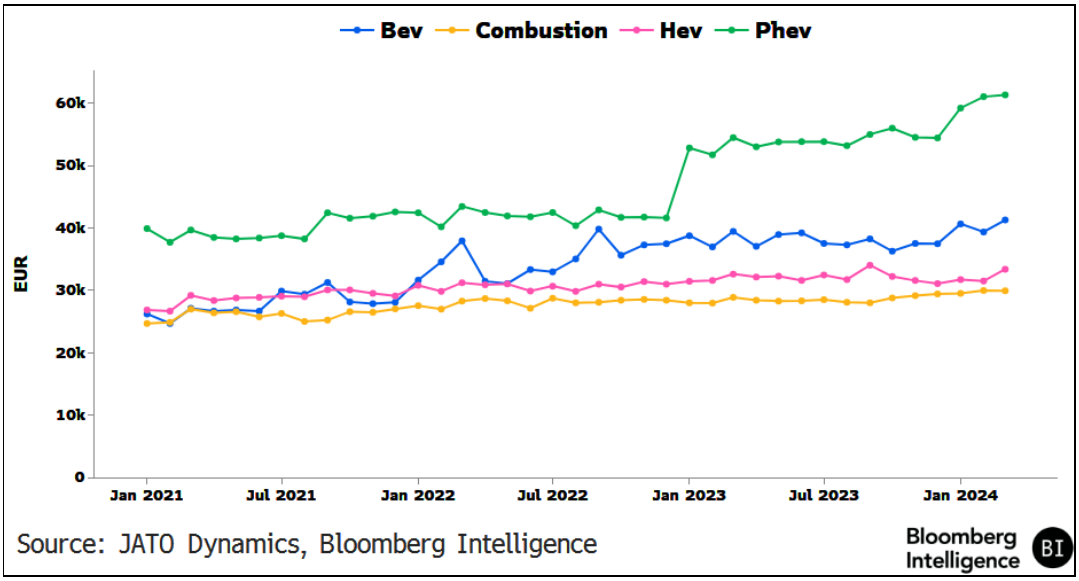
European automakers need BEV prices to remain at a premium to ICE models to compensate for high battery costs until next-generation platforms -- with better scale and enhanced battery technology -- are available from 2026-27.

Tesla's pole position in BEVs is under threat as EU and Chinese competitors ramp up production, with over 70 new vehicles due in 2024-25 from the former, as per our product-lifecycle database. These new BEVs will erode what has effectively been a premium-segment monopoly for Tesla, giving consumers a much wider choice via comparable ranges and is likely to result in further price cuts.

European BEV 2024 market share may stay at a flat 16% or about 2.1 million units -- vs. 15.7% in 2023 (2 million units) -- though it's not until 2026 that our analysis suggests annualized sales will exceed 3 million units (a 23% share). This assumes that generous subsidies remain in place in many countries. BEV share was already at 30% or above in Holland, Sweden and Norway and

Pricing pressure persists

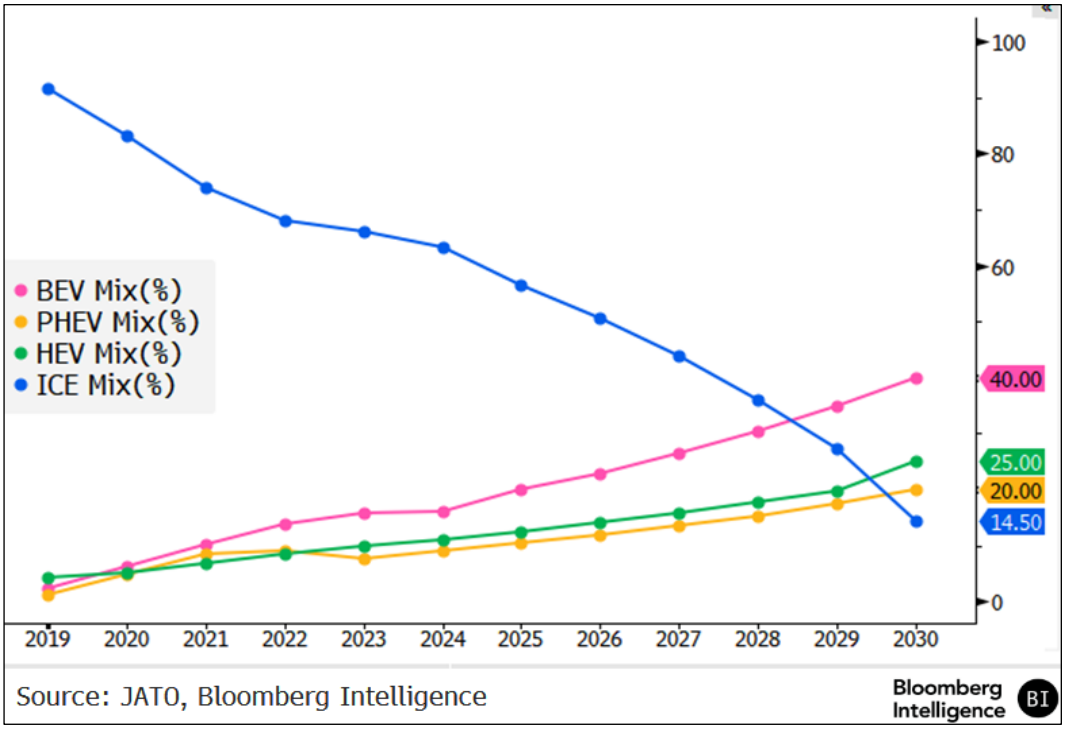
Figure 12: Net ASPs: Germany, UK, France



about 15% in the three largest European auto markets in the first five months of 2024. Germany had a 12% BEV mix in 2024 following an end to government subsidies vs. 17% share in 2023.

The timeline for lower BEV costs and margins to match ICE vehicles has been pushed back at least 24 months to 2027 to coincide with next-gen platforms, new-battery technology and digitalization that will make BEVs more affordable and desirable to customers.

Figure 13: European Auto Unit Sales Share by Powertrain



European automakers' average fleet CO2 emissions will be subject to tougher Worldwide Harmonized Light Vehicle Test Procedure (WLTP) regulations from 2025, replacing New European Driving Cycle (NEDC) rules -- for which they're compliant at 95 grams per kilometer. Volkswagen needs to lower its 2025 emissions by about 20%, based on analysis from JATO. That task has been made harder by declining government subsidies and increased competition from China. Failure to comply will trigger a €95 fine for every vehicle registered in the EU, multiplied annually by each CO2 g/km above the target.

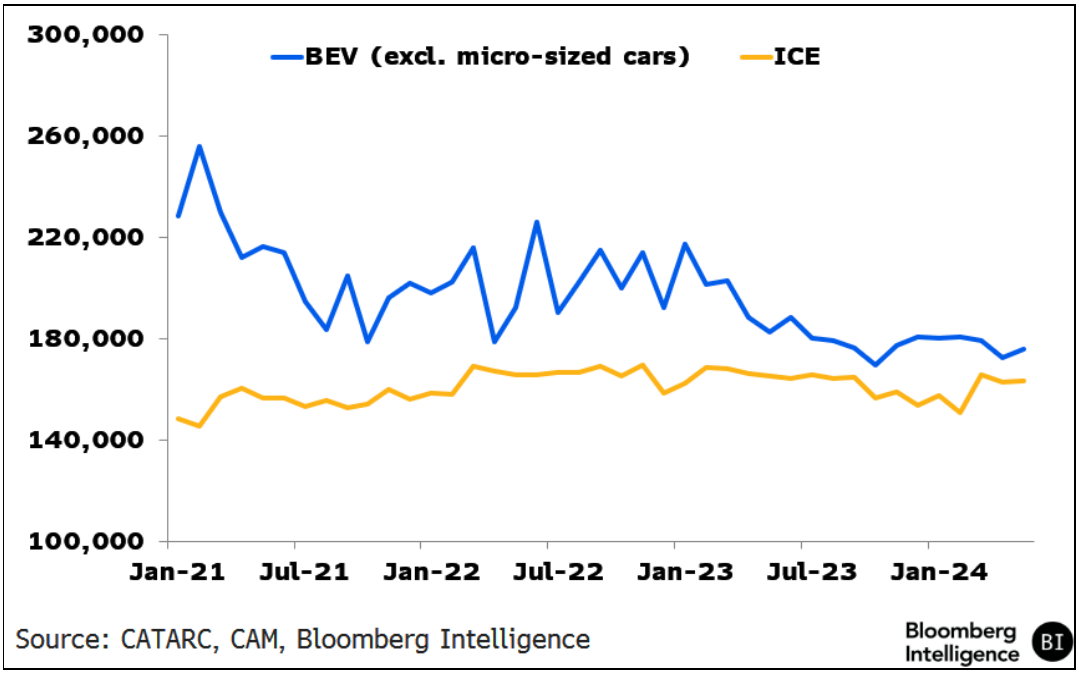
The average fleet CO2 calculation is based on NEDC testing rules, which will be converted to the more stringent WLTP regulations in 2025, introducing a new 93.6g/km limit. That's adjusted for the average mass of a brand's cars.

Our BI consumer new-car buying poll in February highlighted European buyers' concern over the high price of BEVs. Their main issue is a lack of charging infrastructure followed by range anxiety -- issues which are unlikely to be addressed in the medium term and may see more policymakers delay the phasing out of ICE. Charging infrastructure is the biggest challenge, for which there is no quick fix to service a BEV fleet that's growing by about 130,000 units per month in Europe. Only 18% of respondents intend to buy a BEV in the next 12 months, which compares to a 17% market share in Europe in 4Q23, according to JATO.

4.2 China BEV Mass Adoption on Track

China's fading economic outlook may not slow mass adoption of BEVs as fierce competition drives price cuts and new models keep demand steadily rising. BEVs remain on track for 30% of China's retail car sales by 2025 vs. 23% in 2023, we believe, with BYD setting the pace as Tesla appears to have hit a ceiling.

Figure 14: Volume-Weighted Avg. Transaction Price (Yuan)



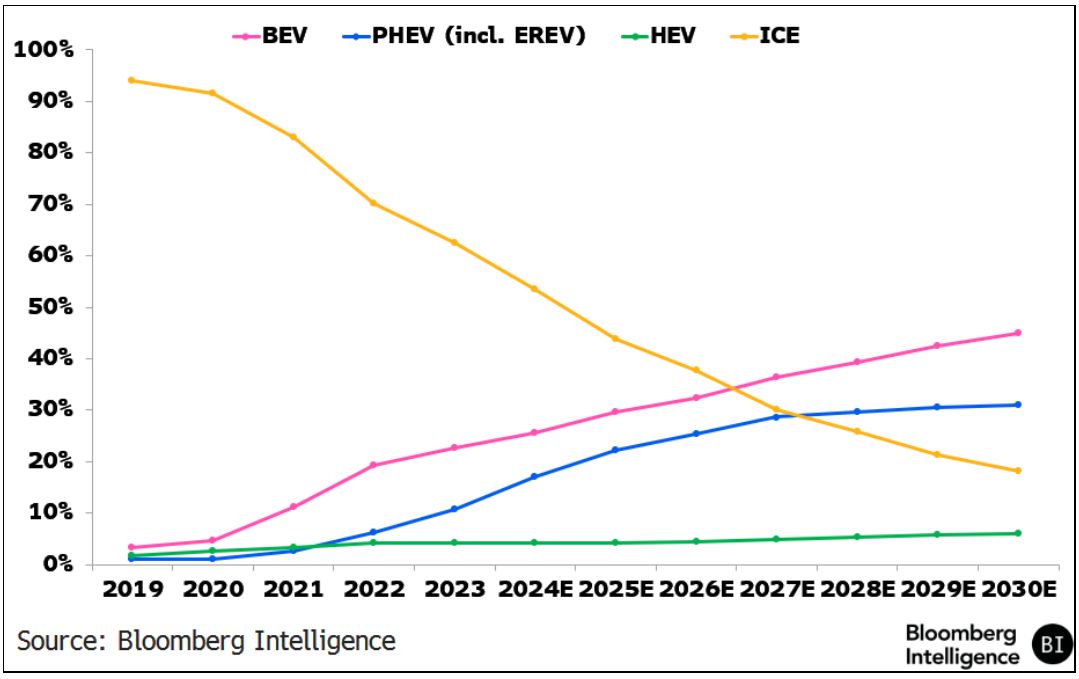
Almost two years of fierce price competition have made Chinese BEVs almost as affordable as internal combustion engine cars, which could lead to wider adoption among mass-market buyers. BEVs' average transaction price has shrunk to high single digits above ICE cars from 20-30% higher for most of 2022, our analysis shows, meaning price parity after BEVs' zero purchase tax. Tesla's and BYD's price cuts, as much as 20% for some models, have forced rivals to follow. More mass-market BEVs from BYD, Geely and newcomers such as Nio's Onvo and Xpeng's Mona are due in 2024-25 to help lift BEV sales in China's smaller, less-affluent cities.

BEVs and plug-in hybrids are exempt from China's 10% purchase tax through 2025, and will benefit from a lower, 5% levy through 2027. BEVs may account for 30% of China's new car sales by 2025 in our scenario, with retail volume at 6.6 million units vs. a 23% mix and 4.9 million units in 2023. The weak economy has hit broader consumer confidence yet BEV sales are still up 23% this year through May, with market share steadily above 25% since March as price cuts and new-model launches kept demand resilient. We expect BEV sales growth in the low teens this year, accelerating to high teens in 2025 as buyers take the leap before a higher purchase tax takes effect in 2026.

Longer ranges and ultra-fast charging may power the next phase of BEV growth to a 45-50% sales mix by 2030. CATL, China's largest battery maker, says its upgraded Shenxing Plus LFP battery delivers 205 Wh/kg at pack level to power a 1,000-km range, and can charge 600 km in 10 minutes.

BI **Pull forward of BEV sales in 2025**

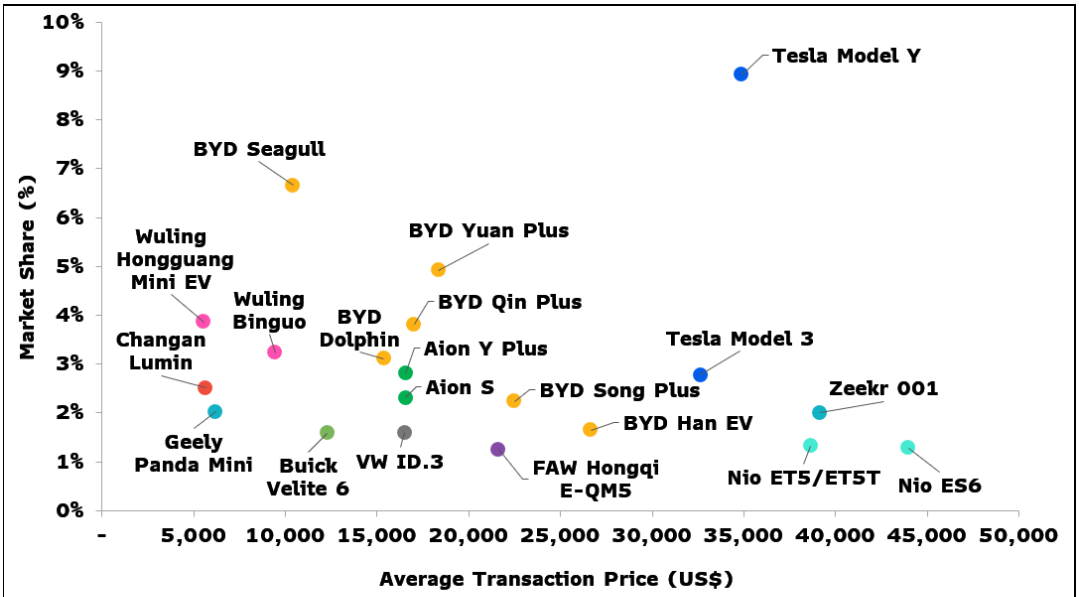
Figure 15: China Retail Auto Sales Mix, by Powertrain



Plug-in hybrid sales are growing faster than BEVs in China though we see a possible reversal around 2027. PHEVs avoid range anxiety and usually cost less than similarly sized BEVs, which have larger batteries. Improved model supplies from startups like Li Auto and Huawei-backed Aito as well as BYD and legacy local brands have lifted PHEV sales 80% this year through May, outpacing BEVs' 23% gains. Yet BEVs still have higher sales due to greater model choices and

may beat PHEVs on growth later this decade as ranges and charging speeds and networks improve to address consumer concerns, and as falling battery costs help narrow the affordability gap.

Figure 16: Best-Selling BEV Models in China



Note: Market share calculated from retail sales volume in the first five months of 2024.

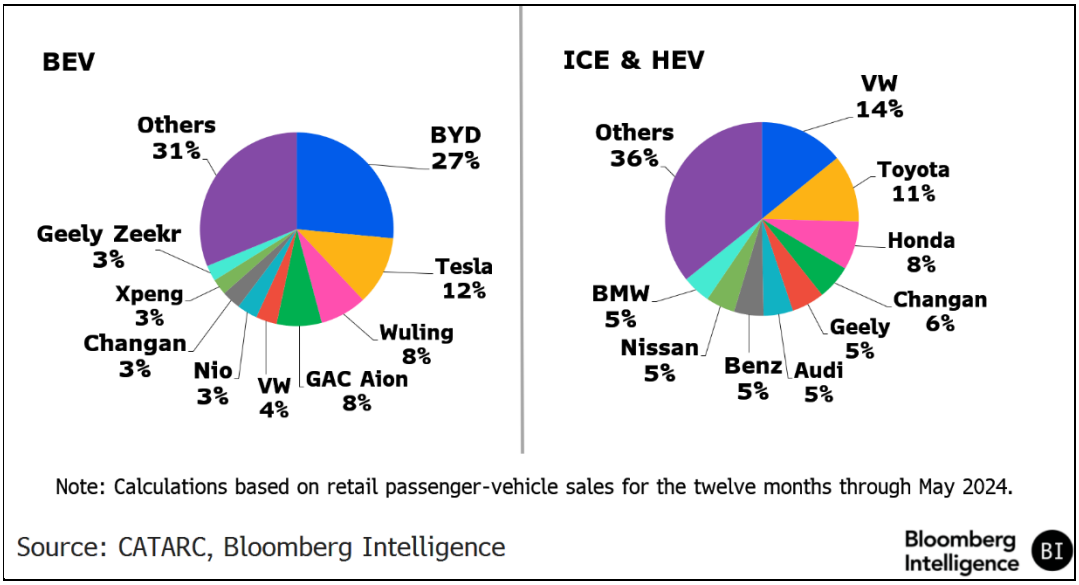
Source: CATARC, CAM, Bloomberg Intelligence

Bloomberg Intelligence BI

Tesla and Chinese brands, despite fierce rivalry, control about 90% of China's BEV sales, and foreign legacy players, which lag in vehicle intelligence and connectivity, will struggle to shake up the market. From smart-driving systems tailored for China's complex traffic patterns to in-car app stores with a wide range of digital services, homegrown brands are quickly evolving designs and technologies to suit consumers' software appetite. Their fast R&D cycle jacks up cost but enables product competitiveness. Many Chinese BEVs get a major retrofit every 1-2 years vs. 3-4 years for foreign brands.

VW and BMW are the only two foreign brands besides Tesla with a BEV market share above 2%. That comes with heavy discounts, with the ID.3 selling 25-30% below sticker price, and the iX3 and i3 at 35-45%.

Figure 17: China Auto Market Share, by Brand



Falling battery costs are providing much-needed margin relief as automakers navigate a prolonged China price war. Lithium carbonate prices fell more than 80% in 2023 and despite turbulence were lower again in 1H, by 5% from end-December levels. Battery makers also stepped-up rebates for customers amid intensified market competition. The average selling price of CATL -- which commands nearly half of China's EV-battery market -- fell about 30% year over year in 1Q, we calculate, equivalent to about $2,700 cost savings per BEV, assuming a 60-kWh battery size. This cost reduction appears sustainable with stabilized lithium prices, and since CATL also reported its highest gross margin in three years.

4.3 Relaxed Fuel Rules May Make US EVs More Affordable

Makers of battery electric vehicles are addressing less than half of the US new-car market -- those autos sold at below $45,000 -- though that may be changing, with new models in the pipeline and Hyundai and Stellantis showing early signs that they can sell BEVs at a profit. Relaxed fuel-consumption rules may enable legacy automakers to move more smoothly toward producing affordable BEVs. BI expects battery EV penetration to reach 11-12% by 2026, with about 1.8-1.9 million units sold.

Only 12 of last year's 60 battery EV models last year had a manufacturers' suggested retail price below $45,000, meaning EV makers are missing out on half of the new-vehicle sales market in the US. The median and volume-weighted MSRP of battery EVs was higher than each average of total light vehicles in 2023, limiting their reach to premium car buyers. The volume-weighted MSRP of new BEVs in 2023 was $52,288. Talk of a $25,000 affordable EV opens up the possibility of capturing more of this sub-$45,000 market. There may be 13 new BEVs at that key price point by 2027, bumping up the pool to 25 models.

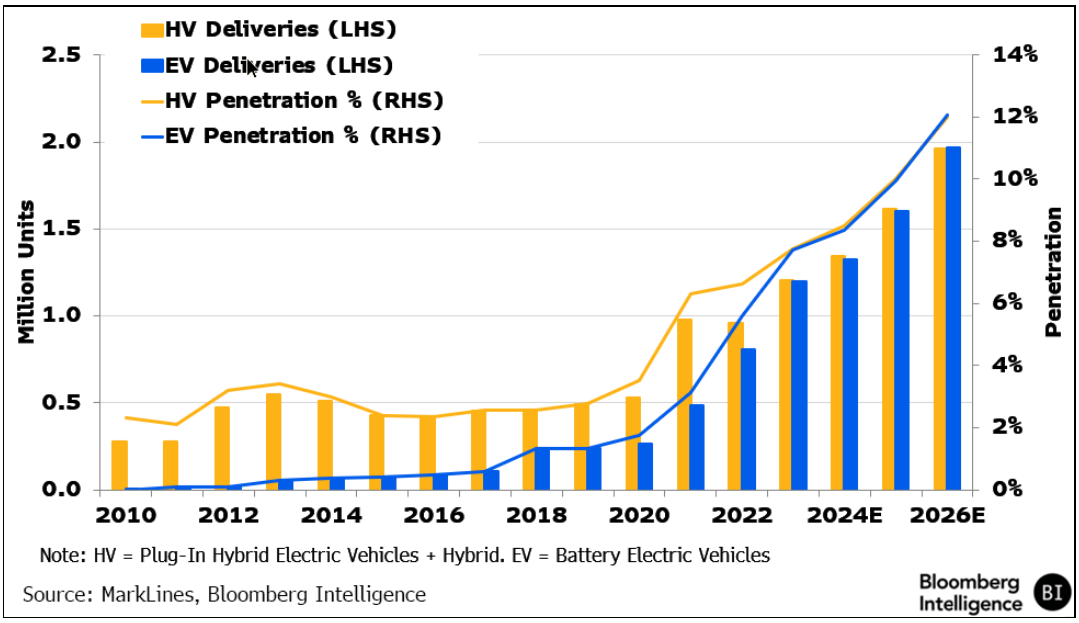
EV makers with battery production may see 10% lower costs for vehicles produced in the US through 2026, we calculate, thanks to the IRA's battery tax credit. Battery factories, led by GM's

Ultium plants, are expected to expand production after 2025, as it takes 2-3 years for such facilities to ramp up. A slew of affordable EV models such as Tesla's compact Model 2, GM's revamped Bolt, and Volvo's EX30, could lift penetration starting in 2026 as more legacy carmakers turn profitable at battery EVs production at scale.

BI

New models, affordability to boost adoption

Figure 18: Hybrids, BEVs Penetration Forecast



We expect EVs to make up 11-12% of total auto sales by 2026, with about 1.8-1.9 million units sold vs. 7.7% this year, at around 1.2 million. Despite the recent slowdown in battery EV sales, the race for affordable models is set to intensify, based on automakers' pipelines. The BEV market could add 13 models priced at $25,000-$45,000 in 2024-2027 -- a price that covers almost 50% of the US passenger-vehicle market, based on our calculation. Ford, despite deep losses with BEVs, is still committed to an affordable platform while trimming a three-row full-size electric SUV plan. GM's new EV model will feature a more efficient architecture, aiming to break even on variable costs by 2H. As battery costs drop due to improved technology, more carmakers could improve profit from BEV production.

Legacy OEMs Hyundai and Stellantis' battery EVs could have already turned profitable, outcompeting GM, Ford and other legacy makers.

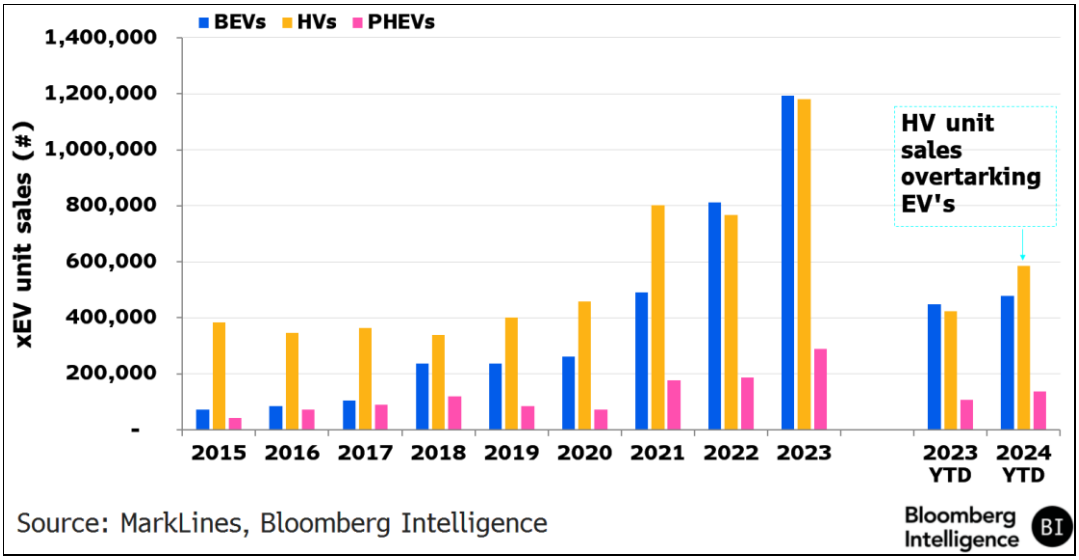
The National Highway Transportation Safety Administration's relaxed fuel-economy standards for light-duty vehicles could buy more time for legacy automakers as they prepare for next-generation EV launches. Detroit automakers' battery EV production has yet to achieve profitability. The postponed and reduced targets may enable a slower pace of EV spending, avoiding earnings disruptions. The new rule will cut automakers' civil penalties by $12 billion. Average fleet fuel economy has been set at 50.4 miles per gallon (mpg) by 2031, down from 58 mpg proposed in 2023.

The previously stipulated 4% increase in light-truck fuel efficiency starting in 2027 is postponed to 2029. Total EV unit sales of light vehicles by 2031 are estimated at 30-56%, according to the EPA, significantly reduced from the previous 67%.

Battery EV sales may have experienced a temporary slowdown in the US due to charging insufficiency and suboptimal profit dynamics. Hybrid-vehicle unit sales have surged 38.3% year-to-date, outpacing BEVs' 7% growth. BEVs are still plagued by prospective owners' anxiety about range and charging, while still carrying a premium over hybrid vehicles. A recent BI survey indicated the top three concerns of buyers avoiding BEVs were all related to charging. Legacy automakers' battery EVs remain unprofitable, as Tesla's price cuts have sparked an industrywide price adjustment that has hit legacy carmakers. Many OEMs are scaling back EV production to mitigate excessive losses.

Yet as affordable and profitable battery EVs roll out, sales could begin to take off starting in late 2025.

Figure 19: xEVs' Sales Trend



EV charging distribution skews significantly toward specific locations and demographic profiles. Five of the 50 states have over 50% of US charging ports with California alone accounting for more than 26% of the total. The locations of EV-charging ports are also heavily influenced by income; 60% of the lowest-income counties have no chargers, while 70% of public EV charge points are in the wealthiest counties, according to Bumper, a vehicle history reporter. Affordability -- ranked just after charging issues in a BI survey -- poses a major obstacle for gasoline-car owners to switch to EVs. We believe the marginal conversion of these drivers to EV owners may hinge on improvements in pricing and the launch of affordable models, which could start hitting the market as early as next year.

4.4 Japan's Mixed EV Strategy

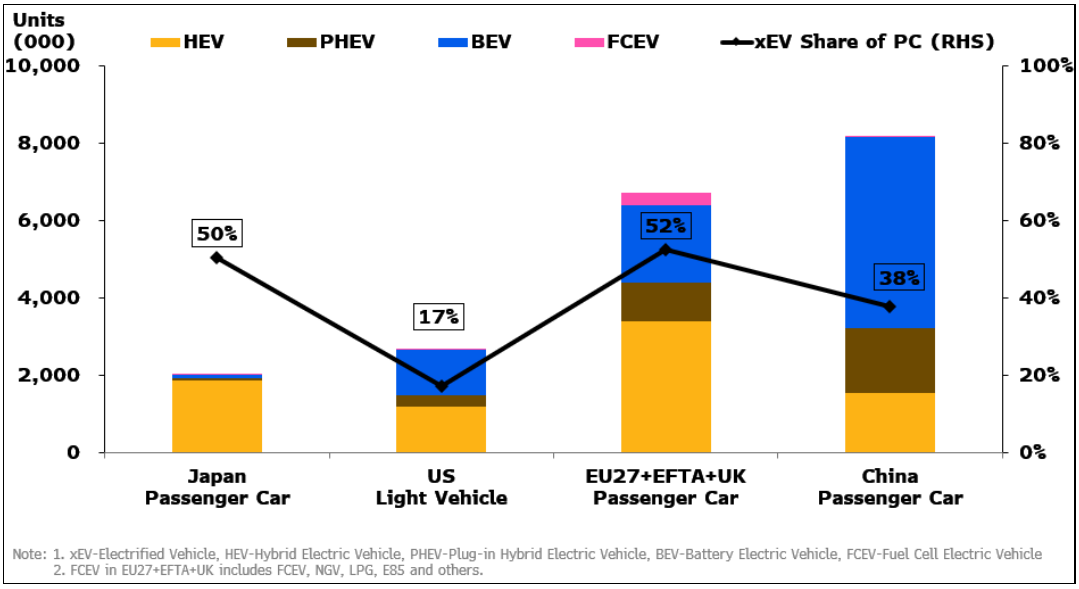
Japanese automakers are gearing up to launch a range of electrified vehicles, including hybrids and BEVs, designed to adapt to local regulations, incentives, energy mix, charging infrastructure and consumer preferences. Japan's automotive sector has accumulated expertise via hybrid vehicles which can be effectively applied to BEVs.

Carbon-neutral initiatives are driving sales of electrified vehicles (xEVs) but via differing paths based on local characteristics, we believe. xEVs range from hybrid electric vehicles (HEVs) which combine an engine with an electric motor, to plug-in HEVs (PHEVs) which have an externally-chargeable battery, to BEVs that only rely on electric motors and batteries, to fuel-cell EVs (FCEVs) which derive electricity from the chemical reaction between oxygen and hydrogen in fuel-cell stacks.

HEVs dominate in Japan, while in China, Europe and the US electrification is progressing with more emphasis on BEVs and PHEVs than HEVs. This is because Japan has no regulations mandating specific types of xEVs, whereas China, Europe and the US have regulations and incentives that directly require specific types of xEVs, such as BEV and PHEV.

BI **Government decarbonization initiatives drive electrification**

Figure 20: Electrified Vehicle Sales and Penetration: 2023



Source: Nikkan Jidosha Shimbun, MarkLines, ACEA, CAAM, Bloomberg Intelligence

Japanese automakers need to provide xEVs to continue business in their mainstay markets of Japan, North America, China and Europe, where electrification is progressing. We believe they need to flexibly adapt to the right type of vehicle in the right place, depending on the regulations, incentives, energy mix, charging infrastructure and consumer preferences of the markets where they do business.

China has new energy vehicle regulations, while US states have zero-emission vehicle mandates which follow California's emission standards, and the EU's CO2 emission regulations require BEVs and PHEVs. In Japan, no laws mandate specific types of xEVs, but fuel economy standards, tax exemptions, consumer preferences and the government's decarbonization initiatives are the driving forces behind electrification.

Japan, as part of its 2050 carbon neutrality target, aims for all new vehicles to be electrified via HEVs, PHEVs, BEVs and FCEVs by mid-2030. Tokyo is set to hit the milestone in 2030. Japan's auto industry has a wealth of knowledge and expertise in vehicle electrification technology and manufacturing since the late 1990s through HEVs, which make up the majority of Japan's xEV market. Japanese automakers and suppliers could capitalize on HEV expertise to develop BEVs

as well. Japan carmakers can advance vehicle-electrification technology before 2030 through at least one or two model generation renewals.

We believe Japanese automakers can utilize the goals set by Tokyo and the national government as leverage to develop new technology and lower costs, sharpening their competitive edge at home and abroad.

Section 5. BloombergNEF Long-Term Outlook

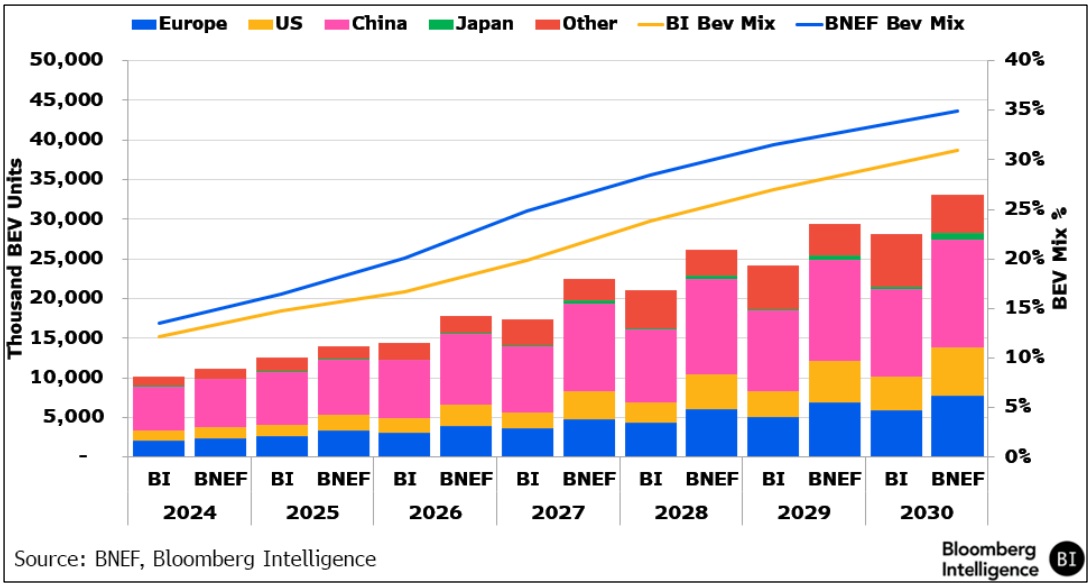
$35 Billion of Annual Battery Investments Needed

BNEF's Electric Vehicle Outlook (web | Terminal) sees EV (BEV+PHEV) sales rising to over 30 million in 2027 (or 33% mix) from 13.9 million in 2023, although markets aren't traveling in the same direction or at the same speed this year. The 2024 report, BNEF's 10th annual outlook, forecasts improving EV economics underpinning continued long-term adoption growth and EVs reaching 45% of global passenger-vehicle sales by 2030 and 73% by 2040. However less than 50% of the global passenger-vehicle fleet is set to be electric by 2040.

Sales of EVs continue to rise globally, but some markets are experiencing a significant slowdown and many automakers have pushed back their EV targets. At this pace, global road transport is still not on a net-zero trajectory, and protectionist policies risk knocking it further off course. In markets where EVs are developing an early foothold there is evidence they are racking up more kilometers on an annual basis than ICE vehicles.

Large investments are needed in all areas of the battery supply chain: Annual lithium-battery demand approaches 5.9 terawatt-hours annually by 2035 which requires $35 billion to be invested in battery-cell and component plants by the end of the decade.

Figure 21: Global Passenger Vehicle BEV Sales, Mix (% RHS)



Our BI BEV sales mix forecasts widen vs. BNEF in 2027 though remain within 400-500 bps. A key difference is BI sees slower development in China given the bulk of BEV sales are below 300,000 yuan and a slower take up in the US with the risk to the downside from a new administration.

Section 6. Performance and Valuation

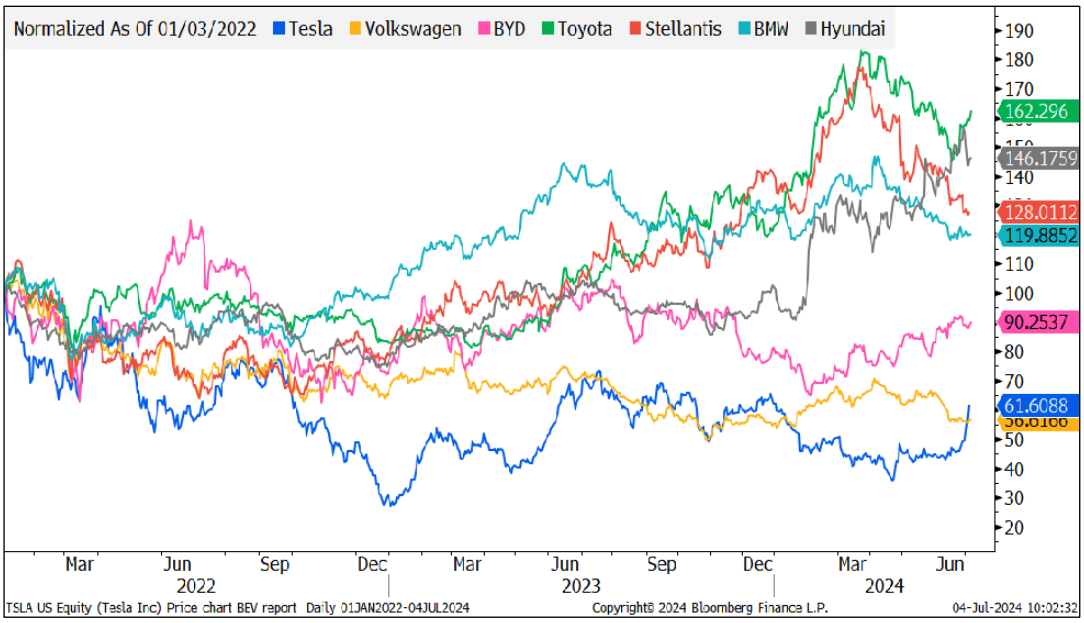
Legacy Automakers Low Multiples vs. Lofty Tesla

Legacy automakers decision not to divest their BEV-related assets appears validated as prolonged robust cash flows from ICE sales have helped them return excess cash to shareholders via buybacks though the sector continues to trade at cyclical lows. BEV pure plays, many of which listed via SPACs, have seen valuations destroyed for a combined loss of €660 billion in market capitalization between Jan. 3, 2022 and July 1, 2024 and many may face cash flow issues as volumes fail to materialize resulting in further casualties and M&A for those with industry leading technology.

6.1 Performance: Tesla Peak $1.3 Trillion; Toyota's Hybrid Win

Tesla shares at the beginning of January had almost halved from their September 2021 peak, when they had jumped 17x from Covid lows, as its 50% growth target is now in tatters. Its market capitalization is still more than the combined top-10 global automakers we analyze in this report, excluding Toyota, which outperformed recently on the back of its bet on hybrids, a weak yen boosting earnings and more-generous cyclicals valuations enjoyed in Japan. Toyota's more sanguine and realistic view on the longevity of ICE translates into a forecast for a 30% global BEV mix for 2030, which matches ours.

Figure 22: Global Carmaker Peers Share Performance



Source: Bloomberg Intelligence

The BI Global Autos Valuation index (BGAVI) is up 7% from a near-term low in November as autos along with other high beta sectors enjoyed a rally for all cyclicals with legacy automakers benefiting from a renaissance for ICE (including PHEVs), lower capex needed for BEVs and strong

free cash flow. That balloon was burst following weak 1Q results with pricing and tariff concerns tumbling the index by 8% since early April. GM was another standout, boosted by reducing BEV spend and returning higher levels of cash to shareholders. This contrasts with BEV pureplays that lost a combined €38 billion of value in 1H.

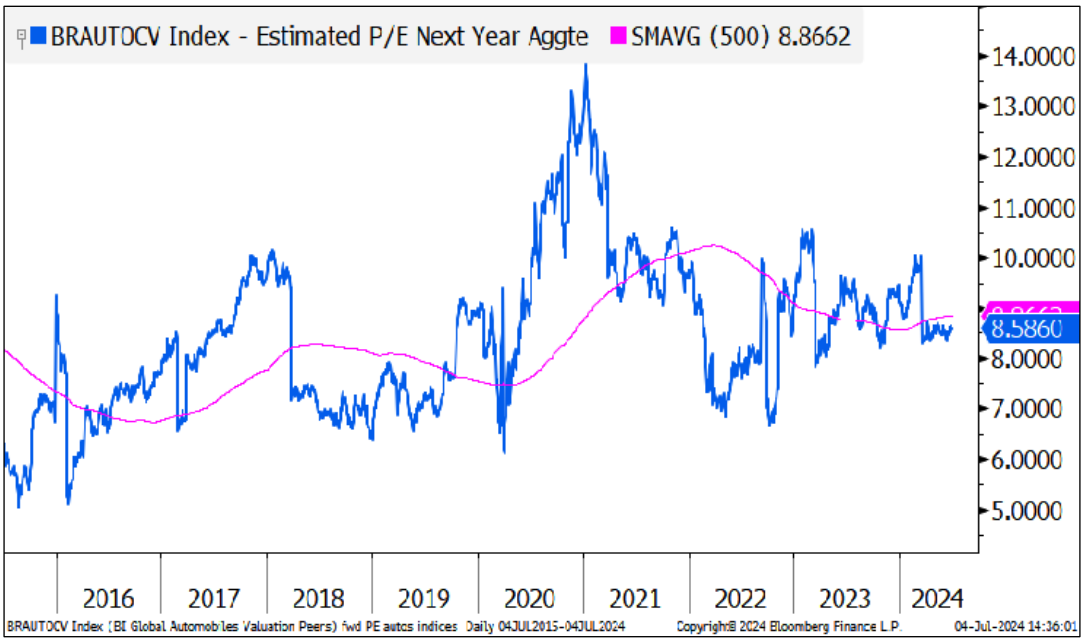
Share prices for North American automakers have underperformed global peers despite stronger earnings, special dividends and share buybacks by Ford Motor and GM. Tesla's decline in profit margin from price cuts, and concerns over the long-term viability of Lucid and Rivian led to volatile stock prices for the EV pure plays. Declines in selling prices will be a central risk for European carmakers for at least the next six months, which has led to their recent underperformance vs. Asia-Pacific peers.

6.2 Valuation: Legacy Automakers Remain at Cyclical Lows

Global sector valuation multiples have been hugely influenced by Tesla following its $1.3 trillion valuation peak was more than its global peers combined value and the associated lofty BEV growth aspiration have evaporated though we believe a huge slice of its valuation is dependent on its software and robotaxi capabilities that are set to be unveiled in 3Q. The global forward P/E multiple – currently at 8.6x – approaches its 2-year average at 8.9x though valuations differ between regions with Japanese stocks continuing to trade on a significant premium to their global peers.

The BI Asia-Pacific automaker peer group's forward P/E multiple as of July 2 stood at 8.5x vs. 7.8x at the start of the year. As supply constraints fade, rising competition, high interest rates and geopolitical tensions keep tempering the industry's outlook, and valuations are mixed. Japanese carmakers, such as Toyota, Honda and Subaru led the increase, with strong earnings powered by robust demand and a weak yen boosting overseas sales. Nissan and Mazda's valuations remained low. Hyundai and Maruti Suzuki also steadily inched higher as share price gains kept up with rising EPS forecasts. Multiples also rose at some Chinese automakers, such as BYD, Geely and Dongfeng, as analysts cut estimates.

Figure 23: BI Global Carmaker Peers Forward P/E



Source: Bloomberg Intelligence

Section 7. Company Impacts

BYD Could Overtake Tesla, VW Plays Catch Up

Tesla may lose its BEV crown to BYD this year as the remaining pure plays battle for survival after destroying €660 billion of market capitalization amid the scaling back of BEV targets. That's boosting the margin and cash outlook at legacy automakers VW, GM, Mercedes, Porsche, Ford and BMW, and we see ICE dominating industry profitability into 2030 aided by hybrids, helping Toyota, which we see leading.

7.1 Tesla to Step Back Before Moving Forward

Market Cap (USD Bln)		763.24
Share Price (USD)		249.23
Earnings Per Share* (USD)		P/E
2023A	3.12	79.88
2024E	2.48	100.58
2025E	3.33	74.82

* Bloomberg Consensus

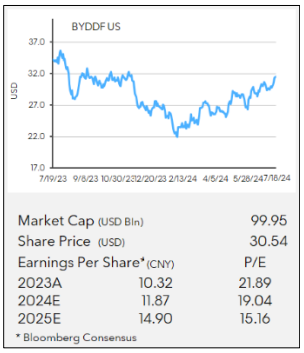
$206 Billion
Revenue by 2040 for Tesla's full self-driving segment

2H25
Launch of new affordable models

Company Outlook: Tesla may need more time to navigate margins through a rough patch as it pulls pricing, staff, delivery and production levers to maximize profitability. Unlike legacy automakers, Tesla doesn't have traditional gasoline vehicles to generate cash as the industry weathers an EV slowdown. Cost management will be key to generating funds for investing in AI and autonomous vehicles. Tesla's valuation suggests that some investors expect it to spearhead a data- and technology-powered transition in which self-driving cars and sophisticated software supplant conventional car assembly.

BEV Impact: Tesla's volume-expansion goals are jeopardized by increasing competition from Chinese brands and BYD in particular. Tesla's profitability will benefit from growth in its software business which may reach about one third of the company's Ebit, ahead of peers. The pace of retail sales in China outperformed US and European markets but was still down about 3% year to date.

7.2 BYD's Scale, Batteries May Offset Margin Pressure



Market Cap (USD Bln)	99.95
Share Price (USD)	30.54
Earnings Per Share* (CNY)	P/E
2023A	10.32	21.89
2024E	11.87	19.04
2025E	14.90	15.16

* Bloomberg Consensus

2.8 Million

BEV unit sales in 2027, we estimate

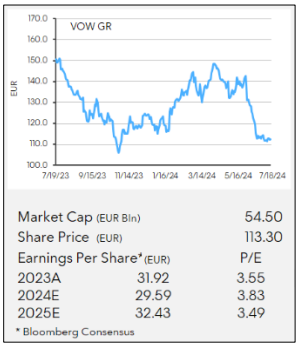
550 GWh

Annual factory battery capacity by 2025, world's second largest

Company Outlook: BYD's scale advantages and deep vertical integration in battery businesses could offset margin pressure amid a persistent price war in China's new-energy vehicle market. The automaker has locked in its domestic leadership with a wide NEV lineup while pulling price levers to squeeze out weaker rivals. Rising vehicle exports are emerging as a volume driver, with its upcoming Hungary factory key to counter EU tariff hikes. A premium push with its Denza, Fangchengbao and Yangwang brands can strengthen profitability in the long term.

BEV Impact: BYD has locked in its China leadership and is gaining popularity throughout Asia and emerging markets, and may take Tesla's BEV crown this year. A deep vertical integration in battery businesses enables its strong cost advantage. Yet its bid for global dominance still faces challenges, given a long battle in Europe to overcome tariffs and consumers' strong loyalty for domestic brands, while a US market entry is unlikely.

7.3 VW Could Be a Contender With Next-Gen Cars



Market Cap (EUR Bln)	54.50
Share Price (EUR)	113.30
Earnings Per Share* (EUR)	P/E
2023A	31.92	3.55
2024E	29.59	3.83
2025E	32.43	3.49

* Bloomberg Consensus

20%

Global 2025-26 BEV mix may be delayed

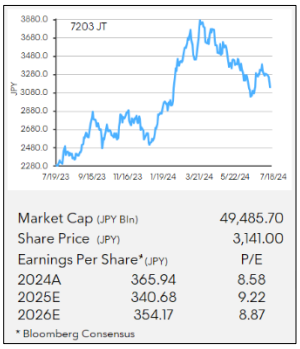
9-11%

Ebit margin target by 2030

Company Outlook: Volkswagen's IPO of Porsche AG was a success, though the remaining 75% stake has yet to be reflected in its valuation and it could do more in terms of cash returns and restructuring. Medium- and long-term goals have been reset, but the new Ebit-margin target of 9-11% by 2030 lacked the detail to elicit a positive reaction vs. 2024 guidance for 7-7.5%, as the economic environment is uncertain and 30 new product launches are planned. Its unwillingness to entertain an IPO of the €30 billion-valued Lamborghini also disappointed. VW's market-leading position in China has been leapfrogged by BYD and it's enlisting local partners via a new strategy to arrest the decline.

BEV Impact: VW Group enjoys a leading 22% BEV market share in Europe, but this dominance needs to be replicated in other regions, particularly China, where its BEV share was only 4% vs. 13% overall and it lost its crown as the most-sold brand in China to BYD last year. Volkswagen is relying on local partnership – like XPeng and Rivian – to improve its offering and potentially is a global contender once again in 2026-27 with its next-gen platforms.

7.4 Toyota Focusing on SUVs, Hybrids for Now



Market Cap (JPY Bln)	49,485.70
Share Price (JPY)	3,141.00
Earnings Per Share* (JPY)	P/E
2024A 365.94	8.58
2025E 340.68	9.22
2026E 354.17	8.87

* Bloomberg Consensus

3.5 Million

BEVs global annual sales by 2030

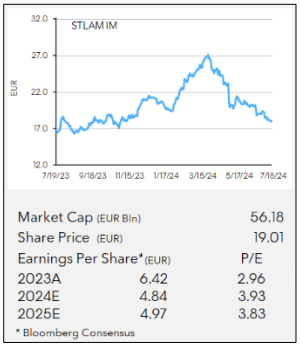
30+

BEV models by 2030

Company Outlook: Toyota Motor's development of connected, autonomous, shared, electrification) technologies and BEV introduction plan through 2030 positions it for long-term growth against pioneers such as Tesla, Volkswagen and BYD. We believe Toyota's multi-pathway strategy with diverse powertrain options including hybrids will sharpen its competitive edge. The light-truck segment, accounting for about 80% of US new-vehicle sales, it has robust new-product plans. In Japan a shipment suspension due to a type-certification fraud disclosed on June 3, may continue to drag its sales.

BEV Impact: Toyota has been rewarded for its bet on hybrid technology as reflected in an 50% share price uplift since mid-2023. Its multi-powertrain strategy will enhance the group's profitability amid the uncertain transition to BEVs. It plans new generation BEVs starting with Lexus in 2026.

7.5 Stellantis' Margin Risks on Inventory, EVs



Market Cap (EUR Bln)	56.18
Share Price (EUR)	19.01
Earnings Per Share* (EUR)	P/E
2023A 6.42	2.96
2024E 4.84	3.93
2025E 4.97	3.83

* Bloomberg Consensus

3.5 Million

Global annual BEV unit sales by 2030

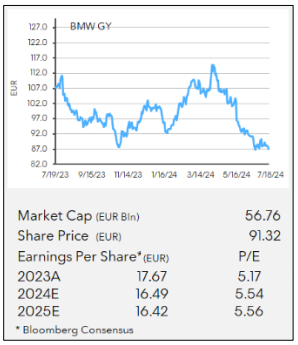
$25,000

All-electric Jeep and Citroen models to boost BEV sales

Company Outlook: Stellantis could contend with weak operating margins throughout the year due to model phase-outs and profitability drag as electric vehicles ramp up. The carmaker's pipeline, with 18 out of 25 models electric, could pressure profitability as EV margins still trail gasoline's. Stellantis' bloated dealer inventory in the US, despite some relief in 1Q, remains higher than Detroit peers', exerting further pricing pressure. Robust operations in emerging markets this year will only partially offset weakness in developed ones. The carmaker's 1H operating-margin guidance was below consensus and its management could be over-optimistic on a 2H shipment rebound as interest rates remain high.

BEV Impact: Stellantis ambitious electrification goals are yet to be backed up by a comprehensive range of BEVs across its numerous brands. It aims for a sub-$25,000 all-electric Jeep and Citroen – needed to enhance the appeal of BEVs though likely dents profitability. Stellantis has the third highest BEV market share in Europe at about 14%, after Volkswagen (18%) and Tesla (16%).

7.6 BMW Outlook Realistic on BEV Uplift, Price Risk



Market Cap (EUR Bln)	56.76
Share Price (EUR)	91.32
Earnings Per Share* (EUR)	P/E
2023A	17.67	5.17
2024E	16.49	5.54
2025E	16.42	5.56

* Bloomberg Consensus

>50%

BEV mix ambition by 2030

8-10%

Medium-term Ebit margin target needs new BEV architecture due 2025

Company Outlook: BMW's guidance for an 8-10% auto Ebit margin in 2024 vs. 9.8% last year looks realistic, after soft 1Q results, as the carmaker faces fiercer price competition. It's also targeting a higher mix of lower-margin BEVs vs. 15% in 2023. The Neue Klasse next-gen platform is crucial to reducing BEV costs and starts production in 2H25. Price discipline is key this year -- particularly in China, where rivalry is intense -- given a weakening economic backdrop, rising material costs, supplier compensation payments and as easing supply constraints erase the supply-demand imbalance. A 10% share-buyback program is continuing.

BEV Impact: BMW leads German peers in the transition to BEVs with a 15% mix in 2023 and more than 50% ambition by 2030 boosted by its next-generation platform from 2025-26. BMW appears as a pioneer with its first BEV i3 launched back in 2013 and benefits from a fifth generation of battery. Rolls-Royce is a pioneer in luxury BEVs, with Spectre launched in 4Q 2023 and has an ambition of being BEV-only by 2030 which is no longer matched by its luxury peers.

7.7 Mercedes Luxury Cash Goals Aided by BEV Slowdown

Market Cap (EUR Bln)	67.97
Share Price (EUR)	64.40
Earnings Per Share* (EUR)	P/E
2023A	13.46	4.78
2024E	11.54	5.58
2025E	12.00	5.37

* Bloomberg Consensus

50%

xEV (PHEV + BEV) mix target in 2025 delayed

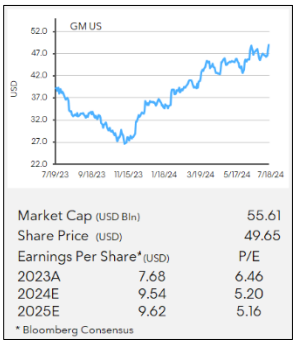
100%

of models expected to have a BEV alternative by 2025

Company Outlook: The 2024 Ebit-margin range of 10-12% targeted by Mercedes-Benz looks disappointing -- when compared to 12.6% reported in 2023 -- though it reflects the uncertain economic outlook, China weakness and falling used-car prices. A positive is the slower transition to lower-margin BEVs, bolstering robust prospects for free cash driving an additional €3 billion share-buyback program. As such, Mercedes is no longer jostling to be recognized as leading the BEV transition, and has delayed its 50% plug-in EV (xEV) sales mix from 2025 to later in the decade vs. 19% in 2023. Car pricing remains a key 2024 risk, partly mitigated by Vans outperforming.

BEV Impact: Mercedes has pulled back on its 50% xEV ambitions as first gen-BEVs have failed to excite its customer base. This is particularly difficult in China, its largest single market, where consumers do not regard BEVs as premium. Its next-generation platforms will allow the company to offer an all-electric alternative for every model by 2025, according to management expectations.

7.8 GM's New Cheap Bolt Key for 2026 Goal



Market Cap (USD Bln)		55.61
Share Price (USD)		49.65
Earnings Per Share* (USD)		P/E
2023A	7.68	6.46
2024E	9.54	5.20
2025E	9.62	5.16

* Bloomberg Consensus

1 Million

BEV production capacity in 2025

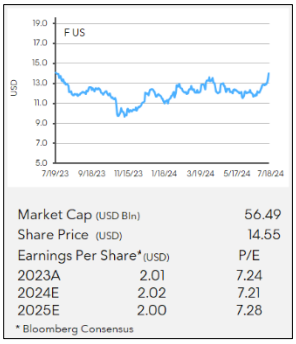
200-250,000

Units production target for 2024

Company Outlook: New EV launches this year will likely set GM up to be more competitive over the long term, as penetration could increase after a pause. The pivotal EV earnings inflection could be realized when it reintroduces the mass-market, more-affordable Bolt EV in 2025. The carmaker is set for variable profit at its EV portfolio in 2H, even with higher costs from a new labor agreement with Ultium Cells and the UAW. GM could still meet its upgraded 2024 guidance for adjusted EPS and Ebit due to strong cost discipline following the UAW strike. Aligning production with demand is crucial for it to maintain pricing. However, the carmaker could end up offering more incentives as Stellantis' unsold vehicles in the US ballooned.

BEV Impact: GM could break even on variable costs in 2024, after rightsizing its production target last year to mitigate losses. The next-generation Bolt electric utility vehicle and the Equinox EV, priced below $30,000 after a $7,500 federal credit, could be pivotal to achieving a 1 million EV run rate by 2025. The Bolt compact SUV, with LFP batteries, aims to be one of the most affordable. EVs could account for about 10% of GM's total deliveries in 2025, contributing 10-13% of its total automotive revenue.

7.9 Ford on Truck Offensive as EVs Take Back Seat



Market Cap (USD Bln)		56.49
Share Price (USD)		14.55
Earnings Per Share* (USD)		P/E
2023A	2.01	7.24
2024E	2.02	7.21
2025E	2.00	7.28

* Bloomberg Consensus

<6%

Of total automotive revenue by 2026 from BEVs

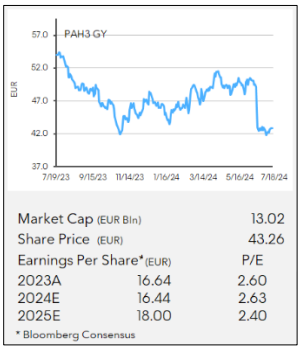
-44%

Ebit margin in 2026

Company Outlook: Ford's SUVs and new pickup trucks could act as profit drivers, while EV losses weigh on adjusted Ebit in 2024. The commercial truck portfolio will depend on strong pricing and a robust order book on demand for new models. The carmaker could continue cutting EV production to mitigate mounting losses while boosting hybrid trucks and SUV sales, which are seeing solid demand. An EV sales inflection hinges on the rollout of affordable, compact models that achieve cost parity, set to debut as soon as 2025.

BEV Impact: EV share of total Ford unit sales may stay below 5% through 2025. Its current EV models -- incurring a $132,000 loss per unit in 1Q24-- are built on its legacy Generation One platform with outsourced batteries. We expect the company to keep rightsizing EV production to contain losses through 2026, when the next-generation EV, equipped with a far more cost-efficient platform and high affordability will be launched.

7.10 Porsche Price and Mix Key to Midterm Targets



Market Cap (EUR Bln)		13.02
Share Price (EUR)		43.26
Earnings Per Share* (EUR)		P/E
2023A	16.64	2.60
2024E	16.44	2.63
2025E	18.00	2.40

* Bloomberg Consensus

80%

BEV mix by 2030 target may be reduced

2026

Launch of new full-electric SUV K1 may lift margins

Company Outlook: Porsche's IPO enabled the namesake family to regain a direct stake and highlight the brand's luxury attributes, which were unrewarded when it was part of VW. The ultimate prize will be Porsche's endorsement as a genuine competitor to Ferrari and Tesla -- for technology and valuation -- though 40-45% BEV sales-mix target for 2025 will likely be delayed by several years. The outlook for 2024 is marred by four new model launches and lower China sales, yet the high-end luxury push and a return to higher-margin volume growth in 2025 are offsets. A positive catalyst would be for VW to increase the free float of the stock from 8%.

BEV Impact: Porsche may lead the BEV transition by a legacy automaker, with a potential 36% BEV mix in 2026 though, this is below the 40-45% we previously expected. With China a key market, there's downside risk given that Chinese consumers don't yet regard BEVs as premium or luxury. This likely results in Porsche extending the life of its ICE models and increasing PHEV alternatives for Cayenne and Panamera. This isn't possible for Macan in Europe where it can no longer sell the ICE version. Its target 80% BEV mix by 2030 is therefore likely to be reduced.

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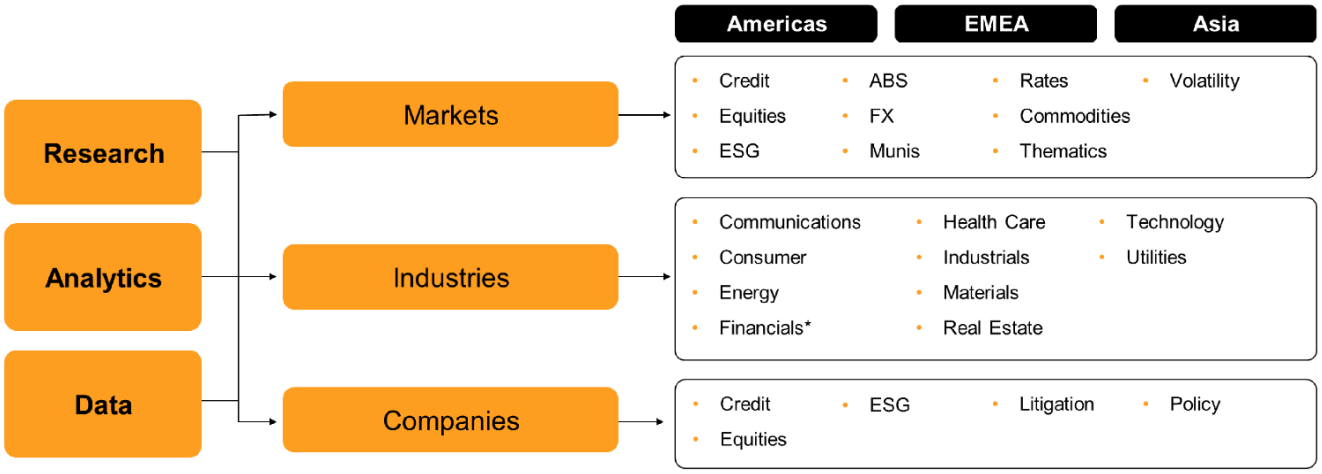

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