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Charging Ahead:

How the U.S. Can Close the Gap in the EV Race

WHITE PAPER

American Security Project

American Competitiveness

In This Report

The world is moving away from conventionally fueled automobiles into a new era of electrified transportation. As policymakers in Washington debate whether the U.S. should cement its position as a fossil fuel superpower or seek dominance in the sustainable technologies of the future, China has emerged as the practically uncontested world leader in electric vehicle (EV) production, sales, and exports. Despite great strides in American EV innovation and technology, recent policy changes are positioning Washington to fall even further behind Beijing in the EV race.

If American automakers are unable to compete in the global EV market, the U.S. will cede enormous profits and influence to its biggest strategic competitor, jeopardizing the future of the entire U.S. auto industry. American policymakers must take urgent steps to restore federal EV and clean manufacturing incentives, reconfigure EV supply chains in cooperation with allies and partners, prioritize battery research and innovation, and stabilize U.S. trade policies. Otherwise, the U.S. will sacrifice its long-term automotive leadership for temporary gains from legacy vehicles that may soon be obsolete.

IN BRIEF

- **Consumers around the world are increasingly turning away from gas-powered automobiles in favor of electric vehicles**. Within the next decade, EVs are expected to comprise almost half of global car sales, while sales of gas-powered vehicles are estimated to have peaked in 2017.
- **Beijing dominates the global EV industry and the entire EV supply chain.** Having manufactured 70% of the world's EVs and nearly 80% of lithium-ion EV batteries in 2024, China controls almost two-thirds of the global EV market.
- **If Washington cedes the EV race to Beijing, it will sacrifice immense international influence and jeopardize the future of the U.S. automotive sector.** The long-term success of this crucial industry, which contributes 3% of U.S. GDP and supports over 7 million jobs, hinges on its ability to compete in an electrified future.
- **It is still possible for the U.S. to win the EV race.** To do so, it must reorient automotive and trade policies, address key supply chain vulnerabilities, and prioritize advanced battery research and innovation.

About the Author

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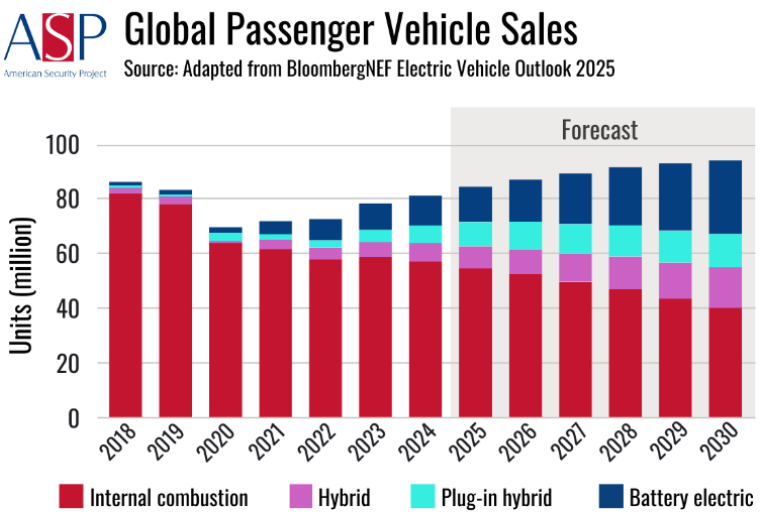
Introduction

The American automotive industry stands at a critical inflection point. Amid ongoing worldwide efforts to reduce carbon emissions and advance sustainable technologies, market data shows that global consumers are increasingly turning away from gas-powered automobiles in favor of electric vehicles (EVs), which comprised over one in five cars sold worldwide in 2024.[1] While the international auto market moves into a new era of electrification, policymakers in Washington debate whether the U.S. should prioritize fossil fuels and the vehicles they power or pursue leadership in the green technologies of the future.



For decades, the United States has been a key player in global automobile production.[2] Internationally recognized brands such as Tesla, General Motors, and Rivian[3] have given the U.S. a strong start in the race for EV dominance, with domestic EV sales multiplying almost eight-fold in the last ten years.[4] However, the United States is rapidly ceding ground to China, which has emerged as the practically uncontested world leader in EV and battery production. In 2024, China produced 70% of the world's EVs[5] and almost 80% of lithium-ion EV batteries,[6] dominating the entire EV supply chain and the global market. The same year, Chinese EV giant BYD (short for "Build Your Dreams") surpassed Tesla, the United States' largest EV producer, as the world's highest-selling EV firm.[7]

While Chinese producers churn out record volumes of EVs,[8] rival manufacturers in the United States, Europe, Japan, and South Korea are struggling to compete with China's state-subsidized prices and rapidly advancing EV and battery technology.[9] Recent policy changes in Washington are positioning the U.S. auto industry to fall even further behind; as the international community turns toward sustainable transportation, U.S. leaders are doubling down on gas-powered vehicles, prioritizing fossil fuel production,[10] and rolling back policies that stimulated clean vehicle innovation and demand.[11] Meanwhile, Beijing is funneling billions of dollars into sophisticated EV and battery technologies,[12] capturing new markets, and cementing its position at the forefront of an electrified auto industry. Though current U.S. policy seeks to promote American dominance, it is instead handing its biggest strategic competitor the keys to the global automaking sector and bolstering China's position as the world's leading power in sustainable technology.[13]

With EVs comprising a growing share of vehicle sales,[14] the success or failure of the entire U.S. auto industry—not just EV manufacturers—hinges on its ability to keep up with evolving consumer demands. Accounting for about 10% of global trade,[15] the automotive sector is a major driver of the U.S. domestic economy and a key lever of American influence on the global stage. It is not too late for the United States to protect this vital industry, but policymakers must act quickly for the U.S. auto sector to remain competitive in a world of increasingly electrified transportation.

For the U.S. to have any hope of overtaking China and reclaiming its historic role at the forefront of automobile innovation, policymakers must restore federal EV and clean manufacturing tax incentives, reconfigure EV supply chains in cooperation with key allies and partners, prioritize next-generation battery research, and stabilize U.S. trade policies. The U.S. cannot continue to put EVs on the backburner in favor of fossil fuel-based technology that may soon be obsolete.

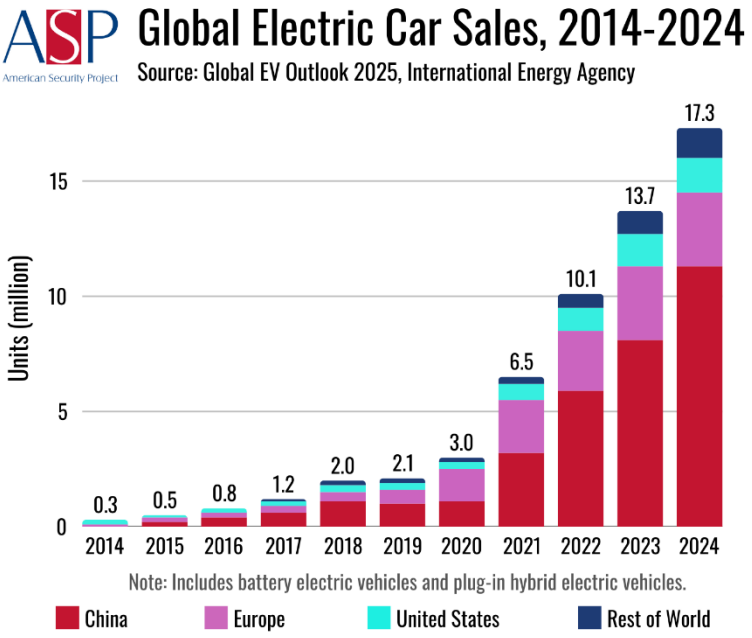
The Global Electric Vehicle Revolution

Consumers around the world are showing an increasing preference for EVs over traditional internal combustion engine (ICE) vehicles.[16] According to the International Energy Agency (IEA), total EV sales in 2024 increased by more than 25% year-over-year and expanded global EV trade by 20%.[17] This brought the international electric car fleet to a total of nearly 58 million, triple its size in 2021.[18] The rise of EVs is fundamentally reshaping the world automotive industry, and historically dominant automaking countries are racing to keep up.

Rising Global Demand for EVs

EV sales across the globe have expanded by a factor of 57 over the last decade.[19] Nations are investing extraordinary volumes of capital to advance their EV and battery industries, with global investment commitments exceeding $1 trillion since 2016.[20] Governments all over the world have also set goals and regulations targeting an increased share of low-emissions vehicles in national car sales.[21] Market analysts expect these growth trends to continue; within the next decade, EVs are projected to comprise almost half of new cars sold around the world.[22]

In recent years, the three largest EV markets (China, Europe, and the United States) have seen rapid growth in EV popularity. In 2024, half of car sales in China and 20% of car sales in Europe were electric.[23] EV sales in the United States have grown every quarter since 2021,[24] comprising a record one in ten new cars sold in 2024.[25] This share is expected to double by the end of the decade.[26]

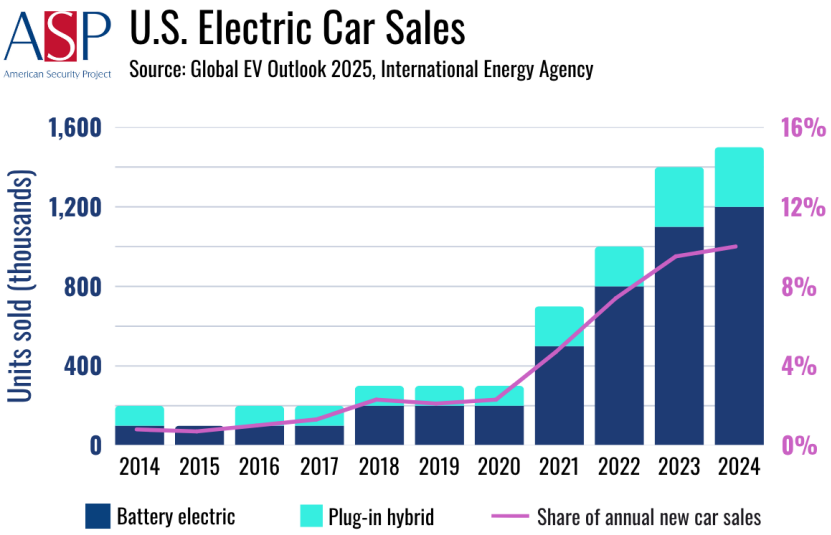


However, demand for EVs is building even faster outside of the three major EV markets. Between 2023 and 2024, EV sales rose 40% across the rest of the world,[27] and developing economies saw sales increase over 60%.[28] This growth is especially pronounced in key markets such as Thailand, India, Turkey, and Brazil, which are all targets for Chinese EV investment.[29]

EVs and the U.S. Auto Industry

The automotive industry has transformed life in the United States over the last century and remains central to the U.S. economy, contributing three percent of U.S. gross domestic product (GDP)[30] and driving demand for other key sectors, such as steel and plastic.[31] With a net employment impact of over 7.25 million jobs,[32] disruptions to the industry are far-reaching; a single auto manufacturing plant closure can wipe out tens of thousands of jobs and devastate surrounding counties.[33]

The EV revolution has transformed this historic industry, with major U.S. automakers committing to ambitious electrification targets[34] and introducing an array of electric models to meet rising demand.[35] In the last five years, American firms have invested over $110 billion in EV and battery manufacturing.[36] U.S. automakers have also made significant progress reducing EV prices;[37] even without Inflation Reduction Act (IRA) subsidies, EV prices are expected to drop below ICE rates by 2030.[38]



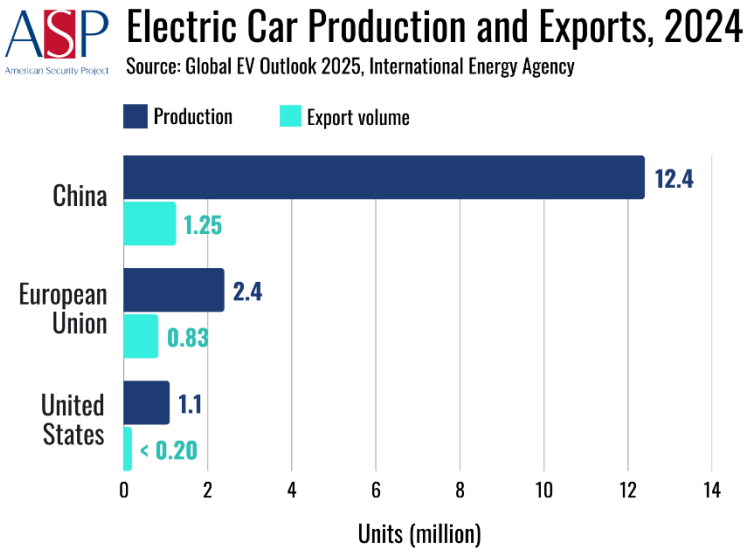
Despite great progress in the American EV sector, the second Trump administration has dealt a series of harsh blows to the domestic EV industry in favor of ICE-focused automakers and fossil fuel producers. This will prove to be a losing strategy; global ICE vehicle sales peaked in 2017,[39] and the fleet of conventionally powered automobiles is expected to begin shrinking before the end of the decade.[40]

Even if EVs do not fully displace ICE vehicles in the long term, the continued success of the entire American auto industry hinges on its ability to capture existing and emerging global markets, which increasingly demand electric vehicles. In 2024, the United States exported about 14% of the motor vehicles it produced,[41] and the top three importers of these vehicles—Canada, Mexico, and Germany—have all seen a dramatic uptick in EV sales in recent years.[42] If U.S. producers are unable to deliver the electrified products its international buyers demand, they will see shrinking profits in key export markets as China expands its share. Additionally, international automakers account for nearly 50% of U.S. auto production and export hundreds of thousands of vehicles each year.[43] As these firms work to meet rising demand for EVs in the United States and abroad, the U.S. risks losing their investment if the American automaking landscape becomes unfriendly or unconducive to EV production.

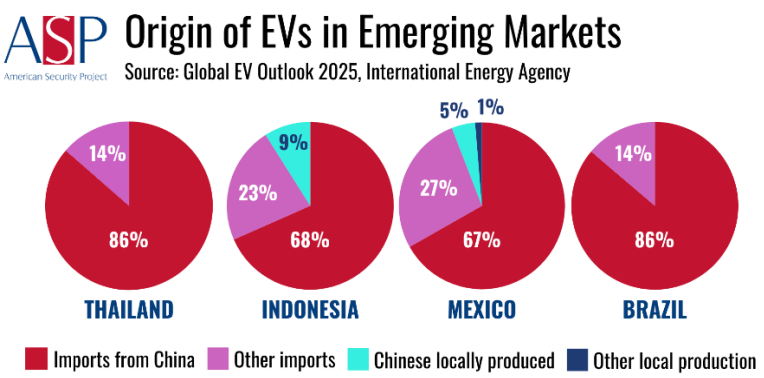
If the United States does not accelerate EV production and innovation, it risks the future viability of the American auto sector and all the economic benefits that come with it. On its current policy trajectory, Washington will fall further behind in the EV race in the coming years. China, on the other hand, is poised to gain immense international influence and control an enormous share of the global EV and battery market, which is expected to be worth around $2 trillion by 2035.[44]

China's Ongoing EV Expansion

The Chinese EV industry has achieved market dominance and significant global influence in just a few decades of operation,[45] currently commanding around 62% of the global EV market.[46] In 2024, China produced over five times the number of electric cars manufactured by the EU, the next largest EV producer,[47] and eleven times that of the U.S.[48] Beijing's success is not limited to EVs; in 2009, China overtook Japan and the United States as the world's largest automotive manufacturer.[49] Today, its overall auto production far exceeds even its closest competitors.



Securing Global Export Markets



In addition to intense domestic competition and supply chain dominance, state subsidies and regulatory support allow Chinese automakers to manufacture and sell EVs at a fraction of the cost of U.S. alternatives. BYD's 2025 Seagull retails for less than $8,000 in China;[50] by contrast, the cheapest American EV model is the 2025 Chevrolet Equinox EV, which starts at $33,600.[51] Although tariffs and other protectionist measures[52] have barred Chinese vehicles from the United States,[53] Chinese exports dominate most other critical EV markets. China itself is home to the largest EV market in the world by leaps and bounds, accounting for nearly two-thirds of global EV sales in 2024.[54] It is also the primary exporter of automobiles,[55] including EVs,[56] to the European Union, one of the world's largest auto markets[57] and the second-largest market for EVs.[58]

Additionally, China is rapidly capturing emerging auto markets in regions such as Southeast Asia and Latin America.[59] In the first quarter of 2023, three out of four EVs sold in Southeast Asia were produced by Chinese firms.[60] In 2024, Brazil became the largest export market for Chinese electric and plug-in vehicles.[61] As regional demand rises, China's competitive pricing and reputation as an established auto exporter offer it an advantage over competing automakers with a lower market share.

Boosting Domestic Producers' Market Share

China's EV industry consists of a mix of domestic companies, joint ventures (JVs), and foreign firms, including top international sellers like Tesla. In the 1990s and 2000s, China's nascent auto sector received a boost from state regulations requiring foreign manufacturers to form JVs with local firms in order to operate in China.[62] These partnerships helped burgeoning Chinese automakers acquire manufacturing expertise and expand sales abroad.[63] Although this law no longer exists,[64] most international automakers continue to partner with local firms; Tesla is currently the only foreign auto manufacturer operating in China without a JV.[65]

Today, China's auto industry is overwhelmingly led by independent domestic firms, which contributed over 80% of the country's EV production in 2024.[66] Chinese automakers such as BYD, Xpeng, and Geely have also gained increasing traction abroad in recent years, enjoying immense global popularity over major overseas EV manufacturers;[67] 17 of the world's 20 top-selling plug-in vehicles are Chinese models, while only two are U.S. models—the top-ranking Tesla Model Y and Model 3.[68]

"The ascent of the Chinese auto industry could become an **'extinction-level event'** for the U.S. automotive sector."

The Chinese EV industry is not playing a zero-sum game; it has helped accelerate the global transition to sustainable transportation and advance pivotal battery technologies. Its swift rise, however, weakens U.S. manufacturers' competitiveness in an EV-dominated future, posing a challenge to the United States' influential and lucrative auto enterprise; while Chinese exports multiply, top U.S. producers are losing share in key global markets.[69] In 2024, the Alliance for American Manufacturing cautioned that the ascent of the Chinese auto industry could become an "extinction-level event" for the U.S. automotive sector.[70] However, U.S. manufacturers are not the only ones feeling pressure from China's expansion; producers in other major automaking countries, such as Germany and Japan, are seeing reduced profits, cutting jobs, and paring back costs as Chinese EVs accumulate market share.[71]

China's Path to EV Dominance

For many years, a combination of market forces and government support have propelled China's EV industry expansion.[72] Beijing laid the foundation for its surging leadership in EVs—and other sustainable technologies—through decades of national policy identifying strategically important industries and outlining government tools to drive these sectors forward.[73] China's Fourteenth Five-Year Plan explicitly identifies new energy vehicles (NEVs), a category of vehicle primarily or entirely powered by electricity,[74] as one such strategic industry and pledges state support to ensure its advancement.[75] In line with this policy framework and numerous others,[76] Beijing has leveraged various policy mechanisms and strategic investments over the last three decades to build key EV industry advantages.

State Subsidies

China provides substantial subsidies to support its domestic EV industry. The Center for Strategic and International Studies estimates that between 2009 and 2023, the Chinese government invested over $230 billion to boost the EV and battery sectors through sales tax exemptions, buyer rebates, research and development programs, infrastructure funding, and government procurement.[77] A recent EU investigation revealed a wide array of government support mechanisms for China's EV industry, including preferential financing, grant programs, discounts on government-provided resources (including batteries and critical minerals), and tax incentives.[78] Chinese automakers also benefit from government subsidies applied to China's battery, steel, and shipbuilding sectors.[79]

These advantages do not extend only to Chinese producers. In combination with the benefits of advanced and low-cost manufacturing, government incentives have persuaded major international automakers to set up production bases in China.[80] Tesla reportedly received favorable loans and a reduced tax rate to build its gigafactory in Shanghai,[81] where it manufactures more than half of its cars.[82] Chinese consumers also benefit from a subsidy program offering buyers up to $2,730 when they trade in an older vehicle to purchase an EV.[83]

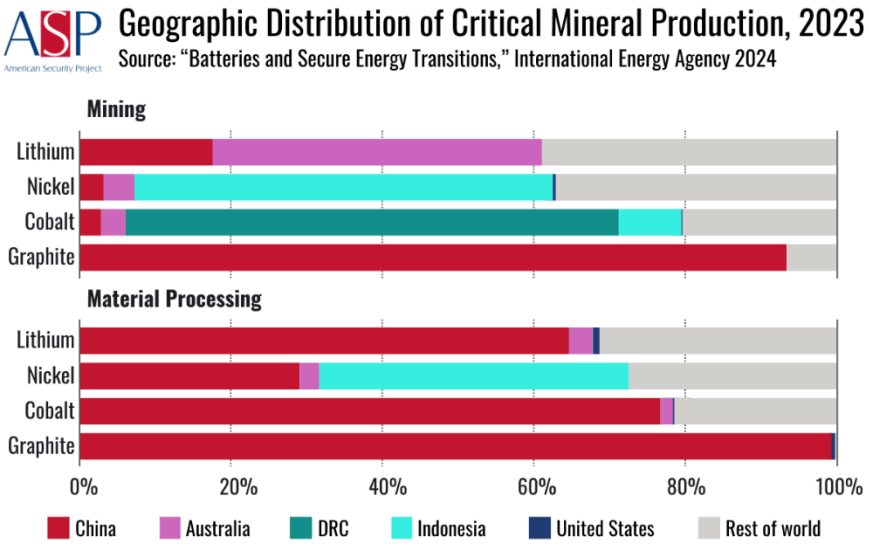
BYD's all-electric supercar, the 2024 Yangwang U9.
CC: Calreyn88

Technological Advancement

Though they often sell for a fraction of the cost of American models, Chinese EVs are becoming increasingly technologically sophisticated.[84] Beijing lends significant state support to rapidly accelerate green tech innovation, including major tax deductions for research and development expenses.[85] As a result, Chinese EV and battery companies are producing cutting-edge technologies that far outclass foreign competitors' innovations. For example, BYD recently released a charging system that can power a car for 400-500 kilometers in five minutes,[86] delivering four times the kilowatts hours provided by Tesla's "superchargers" in the same amount of time.[87]

While Chinese automakers once sought collaboration with foreign manufacturers to advance their technology,[88] "reverse joint ventures" are becoming increasingly common as international companies turn to China for the latest EV technology.[89] European brands like Volkswagen and Stellantis have announced investments into Chinese EV companies,[90] and Ford and Tesla both partner with China's Contemporary Amperex Technology Co., Limited (CATL), the world's largest EV battery manufacturer,[91] to produce lithium iron phosphate (LFP) batteries in the United States.[92] Chinese automakers may have once suffered a reputation as sellers of cheap, low-quality EV knockoffs,[93] but this is no longer the reality in today's market.

Critical Mineral Supply Chain Dominance

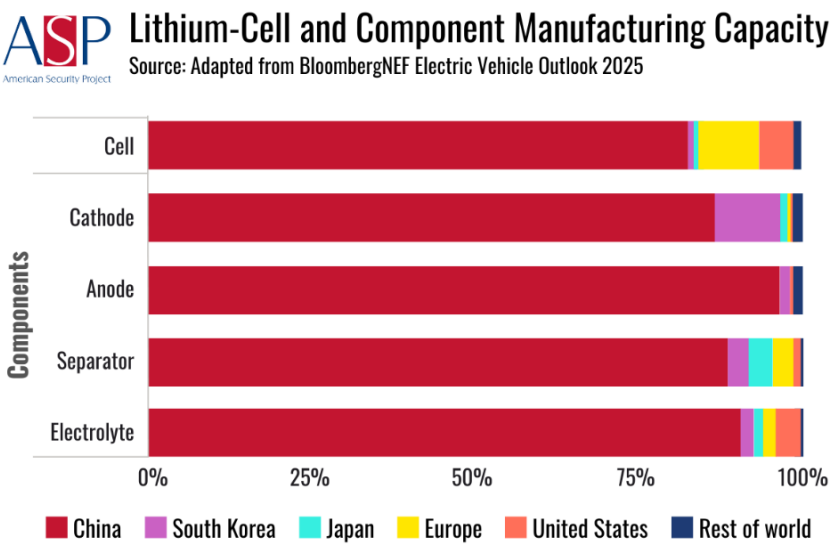


EVs require up to six times the quantity of metals and minerals necessary to produce an ICE vehicle.[94] Lithium-ion EV batteries contain several key minerals, including graphite, nickel, copper, manganese, cobalt, and lithium,[95] while rare earth elements such as neodymium, praseodymium, and cerium are essential to produce the magnets within EV motors.[96] China has a significant chokehold on the production of these minerals,[97] and this dominance is central to its command of the EV industry as a whole.

Unlike its foreign competitors, China does not need to import most of its processed minerals, a major advantage for Chinese producers. China processes majority shares of key battery materials such as graphite, lithium, cobalt, and manganese, as well as substantial volumes of nickel and copper.[98] Graphite, used to produce battery anodes, is Beijing's strongest point of mineral leverage; China mines over 80% of the world's graphite and refines more than 90%.[99] Rare earth elements are another key lever of power for China, which mines 60% of the global rare earth supply[100] and produces about 90% of the world's rare earth magnets.[101]

Beijing has also spent years investing in overseas mining and processing projects for critical minerals which it does not produce at home. Over the last decade, Chinese firms have invested billions of dollars in overseas mining infrastructure, spending $16 billion in 2023 alone.[102] One key target for investment is the Democratic Republic of the Congo (DRC), which mines around two-thirds of the world's cobalt.[103] Through entities like the state-owned enterprise CMOC Group, the world's largest cobalt producer, China controls roughly 70% of the DRC's cobalt production.[104] Benchmark Mineral Intelligence projects that Chinese companies will command nearly half of the global mined cobalt supply by 2030.[105] China is also heavily involved in nickel production, which is concentrated in Indonesia. Through industrial investments, joint ventures, and processing agreements with some of Indonesia's largest nickel producers,[106] Chinese shareholders now control an estimated 75% of Indonesia's nickel refining capacity.[107]

The IEA anticipates a slight increase in the geographic diversification of mineral mining and processing over the next decade, but China is expected to largely retain its hold on the EV mineral supply chain.[108] Beijing has been able to preserve its critical mineral dominance in part because its reign over these supply chains empowers it to flood the market and push prices down when competitors emerge.[109] Additionally, because China's domestic and overseas projects do not enforce the environmental and labor standards instituted in the West, Chinese firms are able to reduce costs and increase the speed of their operations.[110] However, this has resulted in the proliferation of highly pollutive processing operations throughout China[111] and abusive labor practices in Chinese mineral projects.[112] Though such practices are not exclusive to Chinese firms,[113] Beijing's dominance in critical mineral production has drawn increased global scrutiny to a wide array of abuses in domestic and overseas ventures led by Chinese companies.[114] The Business and Human Rights Resource Centre documented over 100 abuse allegations in Chinese overseas critical mineral projects from 2021 to 2022, including allegations of human rights violations against local communities, workers' rights violations, and environmental harm.[115]



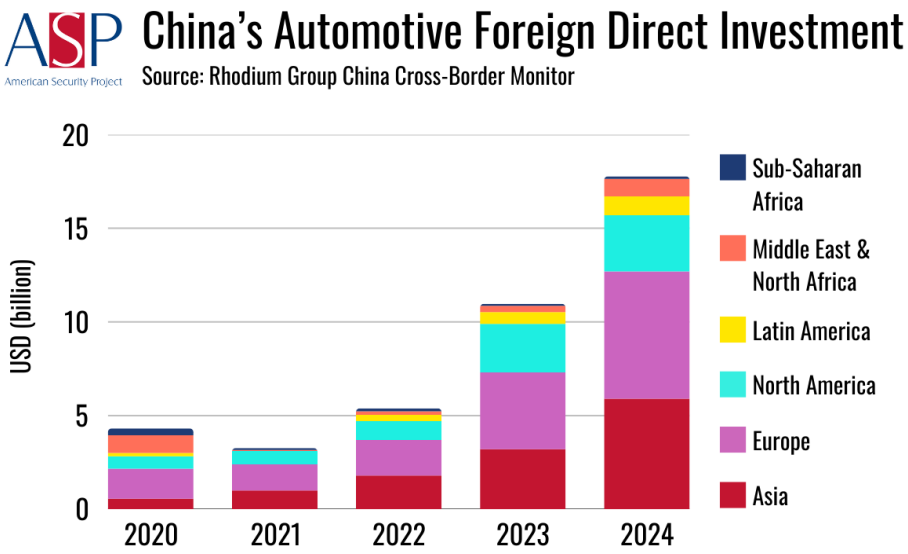
Battery Production

Even stronger than China's dominion over the critical mineral supply, however, is its control of global battery and battery component production. China manufactures more EV batteries than any other country,[116] with production primarily driven by just two companies, BYD and CATL.[117] China is also home to between 85 and 98 percent of the world's manufacturing capacity for EV battery components, including cathodes, anodes, separators, and electrolytes.[118]

Chinese-made lithium-ion batteries have a cost advantage of about 30% over U.S. and EU alternatives,[119] and the price gap between them is widening.[120] This is in part because China powers most of its EVs using LFP batteries, a type of lithium-ion battery that is cheaper to produce than the lithium nickel cobalt manganese oxide (NMC) cells typically used in the United States and Europe.[121] Having produced over 70% of all EV batteries ever made, China has also built a knowledgeable, highly efficient manufacturing base for this technology.[122] Supported by heavy government subsidies[123] and a well-fortified, well-integrated supply of critical minerals, China is expected to retain its overwhelming lead in global lithium-ion battery production through the coming years.[124]

Foreign Investment and Partnerships

Overseas investment and cooperation are major ongoing aspects of China's EV expansion strategy,[125] allowing it to build inroads into new markets (particularly those without a strong, established auto industry)[126] and generate demand for EVs and other exports.[127] Strategic investments in foreign manufacturing capacity help create local jobs and infrastructure in partner countries, which in turn engenders political goodwill toward China and its products.[128]



In recent years, Brazil has drawn over $2.8 billion in investment from Chinese auto firms BYD and Great Wall Motor, both seeking to set up local auto production hubs.[129] Thailand, which purchased about 80% of its EVs from Chinese companies in 2024,[130] has attracted $2.2 billion in manufacturing investment[131] from Chinese producers lured by its large automotive market, well-developed auto manufacturing sector and supply chain, and incentives designed to court investment.[132] In addition to eyeing larger developing nations like Mexico as targets for expanded regional production,[133] China is establishing a presence in small EV markets like that of Uzbekistan, where partnerships between Chinese firms and local Uzbek automakers helped encouraged a recent spike in national EV sales.[134]

Vulnerabilities and Risks

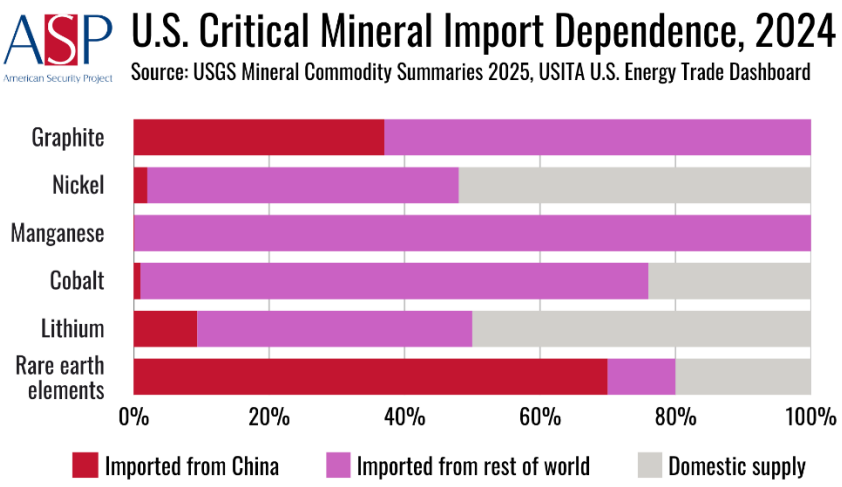
China's EV enterprise is not without risks. The subsidy-generated flurry of EV production has led to severe oversupply issues,[135] prompting a price war that has forced hundreds of Chinese EV manufacturers out of the market.[136] With average profit margins in China's auto industry dropping below 4.5% in 2024,[137] price cuts have been so drastic that government officials intervened in June 2025, chastising automakers for slashing prices and delaying bill payments to suppliers.[138] Over one hundred EV brands still operate in China, but market analysts predict that intense competition and razor-thin profit margins will force most of them out of business in the coming decade[139]—a significant loss for national and local government investors who have spent billions of dollars supporting struggling or unprofitable auto firms.[140]

Amid efforts to offload its excess supply onto foreign markets, China has encountered resistance from key partners, including accusations of dumping artificially cheap goods into the global market.[141] In 2024, the EU voted to apply countervailing duties to Chinese EVs[142] after a year-long probe found that Beijing had been unfairly subsidizing its EV exports.[143] Though it has expressed its support for Chinese auto firms operating in the country,[144] Brazil has also taken steps to protect its domestic auto industry by introducing a 10% tariff on EVs, which will progressively increase to reach 35% in 2026.[145] Despite China's clear global dominance in electric vehicles, even the chairman of Great Wall Motor recently claimed that the industry is "unhealthy."[146]

Focus Areas for U.S. EV Competition with China

The United States has taken several steps in recent years to boost its EV industry and enhance its supply chain resilience. These measures have seen some success, with U.S. EV purchases rising 50%[147] and almost $88 billion in new EV and battery factories having been announced since 2022.[148] However, the U.S. must address several key constraints that are still holding back its EV sector and wider automotive industry.

EV Supply Chain Dependencies



The U.S. relies heavily on imports for its supply of critical minerals and the lithium-ion batteries, battery components, and rare earth magnets that utilize them. With shortages of several key minerals expected to begin by 2028,[149] this dependency is a major vulnerability for American automakers, who are exposed to supply chain shocks and trade restrictions that can have severe impacts on production. According to the United States Geological Survey, the U.S. has an import reliance of 100% for graphite and manganese, 80% for rare earth elements, and over 75% for cobalt.[150] Washington procures several of these key materials primarily through Beijing;[151] for instance, 37% of the United States' battery-grade graphite imports[152] and 70% of its rare earth imports come from China.[153]

Aside from a few factories expected to begin production in the coming months, the United States has practically no indigenous production capacity for rare earth magnets.[154] Automakers must therefore rely on imported magnets, which they source primarily from China.[155] The U.S. is more resilient when it comes to batteries, only importing about 30% of the lithium-ion cells it needs to meet domestic demand;[156] however, around two-thirds of these imports are

from China.[157] This reliance poses a risk not just to EV manufacturers but to the consistent production of military technologies dependent on these batteries, including drones and unmanned surface vessels.[158]

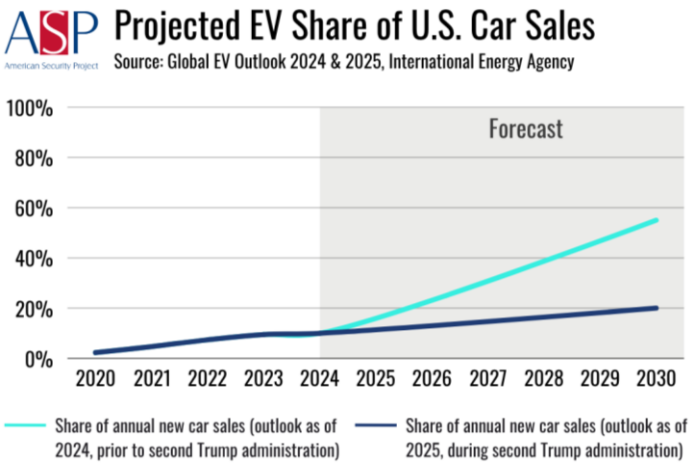
Beijing can and has restricted exports of key EV materials. In December 2023, Chinese authorities introduced an export permit requirement for graphite, making this essential material more difficult for buyers to obtain.[159] Amid rising economic and political tensions with Washington in April 2025, Beijing halted exports of several heavy rare earth elements and rare earth magnets,[160] forcing U.S. automakers to brace for an industry slowdown.[161] Several weeks later, China reportedly leveraged this export ban in negotiations with the U.S. to secure Chinese students' access to U.S. universities.[162]

The United States is actively seeking to de-risk its critical mineral and battery supply chains through onshoring and friendshoring initiatives, but this is a complex and expensive task.[163] Critical mineral markets are often volatile with low price transparency,[164] and their relatively low profitability compared with other raw materials makes them less attractive investments.[165] Additionally, studies have revealed conflicting opinions in U.S. communities toward domestic mining as a means of obtaining critical minerals;[166] only about half of respondents in a 2024 survey believed domestic mining necessary to achieve the energy transition.[167] However, U.S. government investment in overseas mines comes with its own set of risks, as critical mineral mining operations abroad are frequently met with local pushback and linked with human rights abuses, community health risks, and environmental damage.[168]

In cooperation with the automaking industry, the U.S. has doubled its battery manufacturing capacity since 2022.[169] However, battery manufacturing remains much more expensive than in China; an LFP factory costs roughly $15 million more to build in the U.S. or Europe.[170] Although battery production is likely to diversify over the new few years, the IEA projects that North America as a whole will control only about 15% of the world's battery manufacturing capacity by 2030, as opposed to 6% today. By contrast, China is expected to command around two-thirds of global manufacturing capacity, down from around 85% at present.[171]

Fossil Fuel-Focused Policy

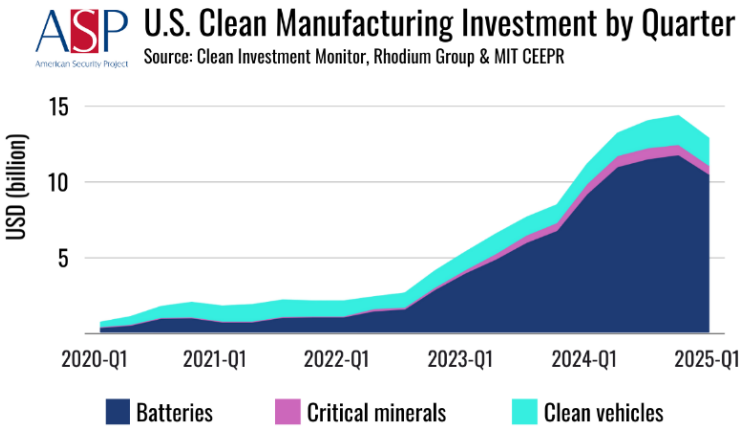
The Biden administration took numerous steps to advance climate action, emphasizing the role of green technology in the nationwide transition to sustainability. The 2021 Infrastructure Investment and Jobs Act established grant programs to expand the national network of EV charging stations,[172] addressing one of American buyers' biggest hesitations toward EVs.[173] Through an estimated $527 billion in tax incentives, the 2022 Inflation Reduction Act encouraged clean vehicle adoption and onshoring of EV, battery, and mineral production.[174] IRA incentives helped increase U.S. annual investment in battery manufacturing by a factor of six over the last two years.[175]



As the partisan balance of power shifts in Washington, the U.S. oil and gas industries are enjoying increased political support. The second Trump administration favors fossil fuels as a central component of U.S. energy dominance[176] and has moved to reverse many of the prior administration's climate and clean energy policies. The Trump administration quickly froze funding for the National Electric Vehicle Infrastructure (NEVI) Formula Program,[177] announced plans to reverse federal tailpipe pollution limitations that incentivized clean vehicle development,[178] and revoked a waiver allowing California to set its own vehicle emissions standards, an ability the state has leveraged to encourage automakers to produce more sustainable vehicles.[179]

The passage of the One Big Beautiful Bill Act[180] (OBBBA) in July 2025 is the heaviest blow yet to the United States' EV and battery sectors. While opening the gates for the oil, gas, and coal industries to expand,[181] the OBBBA formally axed many IRA tax incentives, including those encouraging EV adoption and production.[182] Though contradictory to the Trump administration's stated emphasis on securing the U.S. mineral supply,[183] the new legislation will also phase out tax credits encouraging domestic critical mineral and battery production by 2033.[184]

These policy changes have cast uncertainty onto the future of the U.S. green transition, giving private investors pause and slowing progress on EVs, batteries, and other sustainable technologies.[185] In the first months of the second Trump administration, the U.S. saw a substantial reduction in clean manufacturing investment and the cancellation of around $7 billion in clean manufacturing projects such as battery factories—more than was cancelled in the last two years combined.[186] As investors face ongoing political headwinds, U.S. clean technology development is likely to decelerate while competitors race ahead.



Without significant intervention in the coming years, these enacted and proposed policy reversals will be disastrous for the U.S. EV industry, with the potential to shrink projected EV sales an estimated 40% over the next five years and shutter up to half of the United States' EV factories.[187] They will also substantially slow momentum on EV innovation and hamper the United States' ability to build more resilient supply chains, impacting various industries reliant on battery technology and increasingly in-demand critical minerals. IRA tax incentives helped to boost the American battery industry, with U.S. EV battery production slated to almost entirely meet domestic demand by 2030,[188] but progress is expected to falter as these credits are phased out.[189]

As a result, U.S. EV manufacturers already struggling to compete with Chinese prices and contend with a pro-oil administration will likely see their profits slip at home and overseas. This would be a significant win for Beijing, enabling Chinese producers to gain ground in the EV race without expending any resources of their own. Faltering U.S. EV firms pose additional risk to the U.S. auto sector, as Chinese competitors could purchase intellectual property from shuttered EV companies and use it to extend their own lead.[190] The current administration's crackdown on EV incentives is framed as an effort to create a "level regulatory playing field for consumer choice,"[191] but in the long run, crippling U.S. automakers' ability to compete with China in an electrified future will spell disaster for American producers of ICE vehicles as well. These policies will ultimately hand over a critical source of economic power and global influence to Beijing in favor of short-term fossil fuel profits.

National Security Concerns

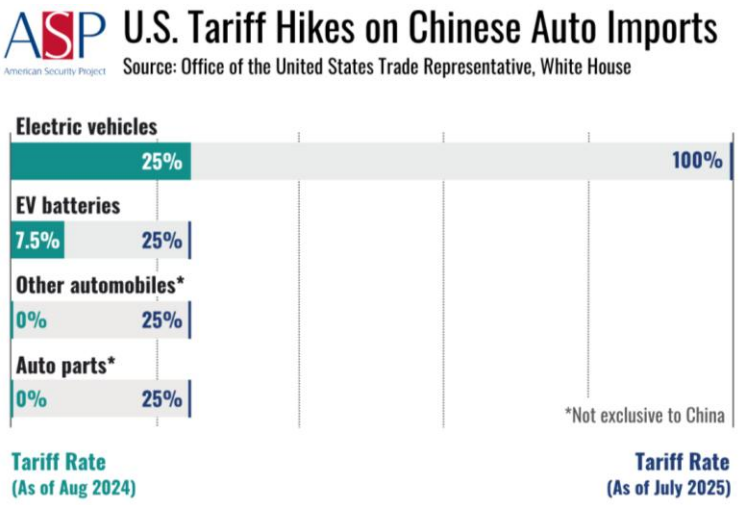
U.S. officials have repeatedly warned of the national security risks posed by Chinese vehicles' hardware and software, including the potential for Beijing to leverage navigation and communication features for espionage.[192] Government statements suggest that adversaries could use vehicle software to collect large volumes of personal data on the vehicles' owners or even remotely interfere with the vehicles' operations.[193] Although there is no public evidence confirming that Chinese EVs are spying on Americans,[194] these risks merit investigation; the Israeli military has restricted its use of Chinese EVs due to espionage concerns,[195] and in recent months, unreported communications devices were identified in Chinese battery systems and solar power inverters imported by the U.S.[196]

Washington has taken several steps to limit the use of Chinese EV technology in the United States. In addition to locking Chinese automakers out of the American market through prohibitively high import tariffs, the Biden administration placed battery giant CATL on a watch list of "Chinese military companies"[197] and proposed a ban on EV hardware and software imported from China.[198] As a result, U.S. partnerships with Chinese EV and battery firms are subject to increased public and political scrutiny,[199] although some experts argue that such partnerships are necessary for the U.S. to catch up to Beijing's EV technology.[200] For example, the designation of CATL as a Chinese military company brought significant controversy to Ford's ongoing cooperation with this firm.[201] As a result, Ford has downsized its plans to construct a Michigan battery factory using CATL technology.[202]

The Ford-CATL controversy underscores the tension between national security imperatives and the urgent need for rapid technological advancement in the automaking sector. Industrial partnerships and knowledge exchanges with top Chinese firms would accelerate American innovation and enhance the United States' ability to compete with China on EVs;[203] however, given the national security risks associated with Chinese hardware and software, these cooperative efforts are limited as many companies choose security over accelerated advancement.

Overly Protectionist Trade Policy

For import-dependent U.S. automakers, tariffs raise production costs and reduce price competitiveness. Despite pushback from auto manufacturers, both the Biden and Trump administrations implemented tariffs on imports of vehicles, parts, and materials from China and other countries in an effort to bolster domestic manufacturing and supply chain resilience.[204] These protectionist policies have seen partial success, with several major automakers announcing plans to shift production to the U.S.[205]



However, these escalating trade controls are doing more harm than good to the EV industry. The Biden administration raised tariffs on Chinese EV batteries and critical minerals in September 2024, straining import-reliant EV supply chains.[206] This pressure has only increased in recent months as U.S.-China trade tensions rise, leading to a slowdown in the construction of battery factories across the United States as critical materials become increasingly difficult to procure.[207] The Trump administration has also doubled duties on steel and aluminum imports from around the world[208] and introduced new auto tariffs[209] that are expected to raise affected vehicle prices by 10-15%.[210] Tariffs targeting key trade partners like Mexico, Canada, and China[211] will put additional pressure on automakers,[212] particularly as gradually decreasing incentives for domestic critical mineral and battery production stifle their efforts to minimize import dependence.[213]

In addition to ramping up production costs for U.S. producers and sales prices for consumers, months of erratic U.S. trade policy and rising economic tensions between Washington and Beijing are creating far-reaching market uncertainty. U.S. allies and partners operating in the United States or China are particularly vulnerable to the two nations' volatile trade relationship, and in some cases, escalating tensions are driving U.S. allies toward Chinese goods. In May 2025, the *New York Times* reported that some EU firms operating in China are buying more Chinese-made components to avoid Beijing's retaliatory tariffs on U.S. goods, increasing European supply chain dependence on China.[214] Amid concerted efforts in the United States and allied nations to diversify away from Chinese supply chains, this is a clear step backward.

The Road Ahead: Recommendations

Some experts claim that China's daunting lead in the EV and battery sectors is insurmountable,[215] but the U.S. may still be able to pull ahead. To advance in the global EV race, the U.S. cannot and should not attempt to replicate the Chinese approach, which is calibrated to China's unique economic and political systems. Instead, Washington and the U.S. private sector must align their EV strategies to their own structural advantages and levers of power.

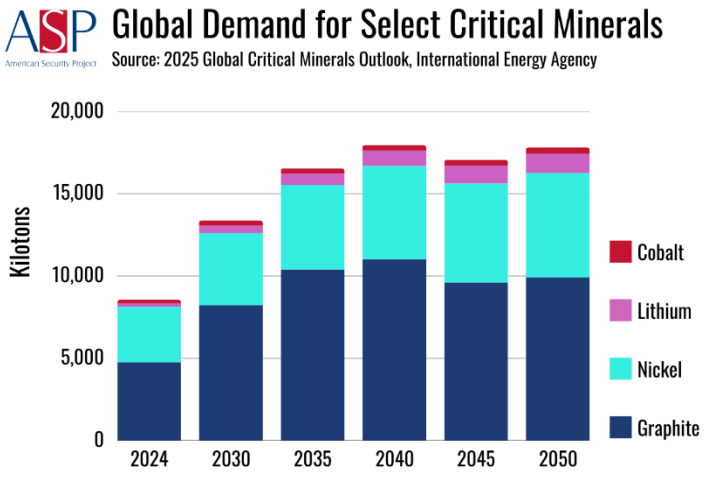
Restore and Refine EV-Related Tax Incentives

For the U.S. to have any chance of competing with China in the EV and battery industries, it must urgently restore EV tax credits and pause the phase-out timeline for battery and critical mineral production incentives. To maximize the benefits of the restored incentives, policymakers should also correct the previous credits' inefficiencies.[216] For instance, Stanford researchers found that 75% of the IRA's claimed EV tax credits were collected by consumers who would have purchased an EV regardless.[217] In order to target new buyers and more effectively disperse the reinstated credits, policymakers must preserve grant programs that address consumer hesitations toward EVs. This includes revitalizing the NEVI Formula Program, which sought to alleviate consumers' "range anxiety" by installing a network of EV chargers across the country.[218]

Restored U.S. tax incentives should be carefully calibrated to avoid overcapacity and long-term reliance on federal support. This will involve bolstering demand certainty by reassuring consumers that their concerns toward EVs are being addressed and by vocalizing support for the EV and battery industries. Without certainty in the U.S. market, American automakers lack the resources and incentives to invest in EV technology and expand into international markets, increasing the need for subsidization and slowing innovation.[219] With its 600,000-vehicle fleet, the federal government can also contribute to EV and battery demand certainty by upholding the Biden administration's plan to transition to zero-emissions vehicles, creating an assured market for auto innovators as national demand grows and U.S. EV technology advances.[220]

Onshore and Friendshore EV Supply Chains

The ongoing effort to de-risk U.S. battery and critical mineral supply chains is a substantial and expensive undertaking requiring an immense amount of political will. It is an objective that Washington cannot achieve alone. Benchmark Mineral Intelligence estimates that the U.S. and its partners must collectively invest $920 billion over the next decade to construct critical mineral supply chains independent from China.[221] In order to mobilize the resources necessary to meet this challenge, the U.S. must cooperate with a coalition of nations with similar economic security goals.[222]



In the meantime, the U.S. can take steps to reduce the risks of overreliance by continuously monitoring the most urgent mineral deficiencies, identifying critical chokepoints, and investing strategically in friendly nations who can help alleviate these vulnerabilities. Although mineral reserves in the U.S. and Canada are insufficient to meet projected North American demand, increased cooperation with close allies can help fill in the gaps.[223] Australia, for instance, has significant reserves of cobalt, lithium, nickel, and rare earths, and ranks among the world's top producers of these materials.[224] The U.S. should also seek to strengthen its relationships with "linchpin" countries such as Indonesia,[225] the world's central hub for nickel production,[226] and Brazil, home to the world's second-largest graphite reserves.[227]

In cooperation with this network of partners, the U.S. should invest in both onshore and overseas production capacity for materials in demand today as well as minerals central to emerging technologies.[228] Existing multinational forums such as the Quad and the Minerals Security Partnership offer useful platforms to quickly scale up collaboration.[229] The same principles apply to battery production; the U.S. should leverage its close trilateral partnership with Japan and South Korea, both major players in global battery manufacturing, to reduce all three countries' reliance on Chinese battery components.[230]

In their efforts to obtain vital EV and battery materials, the U.S. and partner countries should ensure that mining projects at home and abroad follow strict standards and internationally recognized due diligence guidelines[231] to mitigate harm to workers, affected communities, and the environment. These practices are crucial to ensure that efforts to boost supply chain resilience are both minimally disruptive and politically feasible. The U.S. should also capitalize on its critical mineral supply using circular economy strategies; for instance, by increasing investment in EV battery recycling technology[232] and supporting efforts to recover critical minerals from the waste of existing mines.[233]

Prioritize Next-Generation Battery Innovation

As a key component of its efforts to enhance EV and battery systems, the U.S. should prioritize investment into research and development for solid-state batteries—higher-performance batteries with solid electrolytes.[234] Although market analyses project that China will retain a majority share of global lithium-ion production in the coming years,[235] they indicate that a dominant manufacturer has yet to claim the solid-state battery market as this technology inches closer to commercialization.[236] The U.S. should take urgent advantage of this opportunity, as next-generation batteries could represent 20-30% of the global battery market in the next decade.[237]

A leapfrogging strategy presents several benefits for the United States. First, next-generation batteries would allow the U.S. to circumvent or mitigate key supply chain chokepoints controlled by China. Solid-state batteries use anodes made from materials such as lithium metal and silicon rather than graphite, reducing some of the United States' demand for this mineral.[238] Additionally, advancements in battery technology would enhance the quality and performance of U.S. EVs, making American models more competitive. These battery innovations could also boost other sectors alongside the EV industry, such as defense technology and grid energy storage.[239]

Several U.S. companies have joined the race, with some hoping to commercialize solid-state batteries before the end of the decade.[240] There are several steps policymakers can take to boost their efforts. First, the U.S. should ramp up federal support for companies focused on pushing forward next-generation batteries. IRA tax incentives were effective in boosting U.S. battery manufacturing capacity, but these incentives predominantly supported lithium-ion battery production rather than solid-state chemistries.[241] Additionally, expert analysis indicates that less than one percent of the $24 billion in federal funding distributed through the Department of Energy since 2022 has gone to solid-state battery development.[242] Researchers at the Carnegie Endowment for International Peace have suggested that increased federal support for this technology should be driven through innovation-centered rather than climate-focused policy frameworks to promote bipartisan consensus.[243]

In addition to expanding domestic cooperation through cross-sectoral research hubs such as the SLAC-Stanford Battery Center,[244] the U.S. should ramp up international collaboration with allies already immersed in the next-generation battery race. Several international partnerships are underway to drive solid-state technology toward commercial viability, including a recently announced agreement between Volkswagen Group and American battery firm QuantumScape.[245] These partnerships are valuable platforms for knowledge sharing and accelerated technological advancement, offering the U.S. and its allies a crucial opportunity to catch up to Chinese innovation.

Stabilize and Focus U.S. Trade Policies

With the U.S.-China trade feud seemingly at a standstill,[246] Washington should seek to deescalate economic tensions with Beijing and back off of the sweeping tariff regime it has imposed against numerous key trade partners.[247] In a geopolitical moment that necessitates close U.S. alignment with its allies and partners, these tariffs will only hamper cooperative efforts to boost supply chain resilience, advance sustainable technologies, and otherwise maintain leadership in a rapidly evolving international order.

If the U.S. is intent on imposing tariffs to encourage increased onshore production and supply chain development, these duties should be calibrated and focused for each individual country, targeting specific goods to achieve clear objectives. The EU's countervailing duties on Chinese EVs, for example, were calculated based on an extensive and transparent investigation and set to precisely counteract the estimated subsidies afforded to each Chinese firm.[248] Additionally, any tariffs on critical mineral or battery supply chains should be adjusted to avoid crippling EV producers' operations.

Importantly, the U.S. must publicize and clarify through diplomatic channels the rationale behind each tariff to reduce political fallout.[249] Washington should also leverage nontraditional, non-economic tools to restrict the flow of Chinese products; for instance, limiting Chinese imports through environmental or labor rights standards.[250] Ultimately, EV-related trade policy should be consistent, aligned with the interests of U.S. firms and consumers, and transparent to allies and partners.

Conclusion

The battle for the EV industry is just one leg of a larger race for dominance over the technology that will define the future, and the United States still has a chance to win. With its vast network of allies and partners, elite technological innovation landscape, and long history of automaking, the U.S. is well-equipped to lead the global EV industry. However, by prioritizing temporary economic gains from fossil fuel production and traditional ICE vehicles over investment in the electric vehicles of tomorrow, Washington is getting in its own way while Beijing speeds ahead. Locking Chinese EVs out of the U.S. will buy time for American automakers to innovate and expand in the domestic market, but it is not a permanent solution; firms must remain competitive in the international market to ensure continued growth. The window of opportunity to regain leadership in the EV sector is rapidly closing, and the decisions the U.S. makes today will determine whether the American auto enterprise can thrive in an electrified future.

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Graphics

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Figure 1. Global Passenger Vehicle Sales: Adapted from "Electric Vehicle Outlook 2025," *BloombergNEF* (Executive Summary pp. 4).
Figure 2. Global Electric Car Sales, 2014-2024: IEA 2025; "Global electric car sales, 2014-2024," in *Global EV Outlook 2025,* https://www.iea.org/reports/global-ev-outlook-2025/trends-in-electric-car-markets-2#abstract, License: CC BY 4.0. Disclaimer: This is a work derived by ASP from IEA material and ASP is solely liable and responsible for this derived work. The derived work is not endorsed by the IEA in any manner.
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Figure 6. BYD's all-electric supercar, the 2024 Yangwang U9: "2024 Yangwang U9 (31780)" by Calreyn88; License: CC BY-SA 4.0.
Figure 7. Geographic Distribution of Critical Minerals, 2023: IEA 2024; "Figure 1.18: Geographical distribution of the global battery supply chain" in *Batteries and Secure Energy Transitions* (pp. 58), https://www.iea.org/reports/batteries-and-secure-energy-transitions, License: CC BY 4.0. Disclaimer: This is a work derived by ASP from IEA material and ASP is solely liable and responsible for this derived work. The derived work is not endorsed by the IEA in any manner.
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