RISKS FROM VEHICLE TAX INCENTIVE REFORM IN 2025

A review of the U.S. manufacturing renaissance spurred by electric vehicle investments

By Nick Nigro, Stephen Naimoli, and Sophie Latham

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Executive Summary

An unprecedented buildout of supply chains for electric vehicles (EVs), batteries, and charging infrastructure has contributed to the start of a manufacturing renaissance in the United States. As global demand for electric vehicles rises—reaching 17 million units sold in 2024—significantly reforming or eliminating federal tax credits for electric vehicle and battery supply chains poses two critical risks to the United States:

1. It would cede ground to China (which built more than 31 million vehicles and purchased 11 million EVs in 2024) in the race for the future of transportation and energy jobs.
2. It would harm vital parts of the U.S. economy and security, jeopardizing tens of thousands of jobs and billions of dollars of investment in communities across the country.

Between 2009 and 2024, companies pledged $224 billion in investments and announced 243,000 jobs across 557 electric vehicle, battery, and critical minerals facilities in the United States. These recent, large investments stand to keep the United States in the race but by most measures, the country is well behind. Moreover, associated federal tax credits are designed to work together—the 45X manufacturing credit is fueling a manufacturing expansion, while demand-driving credits for new vehicles (30D), used vehicles (25E), charging (30C), and commercial vehicles (45W) provide U.S. battery manufacturers and critical mineral producers with an avenue to market for their products. Continued federal government support from through the existing tax framework levels the playing field for companies operating in the United States as the vehicle market becomes more competitive.

Many of these investments would not have happened without the tax credits. Ford CEO Jim Farley, for example, stated, "[m]any of our plants in the Midwest that have converted to EVs depend on the production credit. We would have built those factories in other places, but we didn't." He also warned that "many of those jobs will be at risk" if Congress repeals the tax incentives.

Lawmakers in Congress have also noted the benefits to the communities they represent. Representative Buddy Carter (R, GA-1) said in December 2024 that "[fellow congressional Republicans] understand that there may be parts of [the federal tax code] that can help us secure our supply chain…[W]e should look at keeping it."

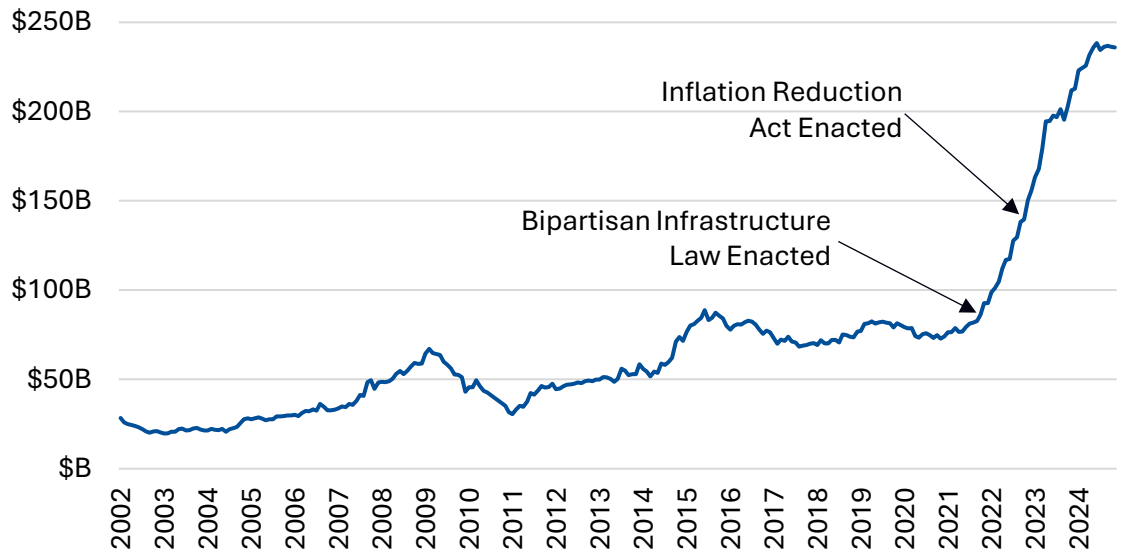
Eliminating or otherwise making the federal tax credits too difficult to attain would risk the future of transportation and energy jobs and harm the U.S. economy and national security, likely leaving the United States at a permanent disadvantage against Europe and especially China.

Introduction

The United States is experiencing the early stages of a manufacturing renaissance, which has been notably influenced by the Bipartisan Infrastructure Law, the Inflation Reduction Act, and the CHIPS and Science Act. In particular, the Inflation Reduction Act introduced new tax credits and extended and expanded others to encourage the manufacture and purchase of electric vehicles (EVs), batteries, and their components—including the processing of critical minerals—made in the United States. These investments have strengthened U.S. global competitiveness and security by revitalizing the U.S. manufacturing sector. As a result, global companies are building new facilities in the United States at a pace unseen in decades (see Figure 1).

Company statements and other evidence included in this report indicate that changes to these federal incentives would discourage these new investments and jobs and place the United States at a disadvantage in the global economy. This risk comes at a pivotal juncture as the country competes with China and Europe for the future of energy and transportation jobs—key drivers of the economy's national security.

Figure 1: Total U.S. Construction Spending for Manufacturing



Following laws enacted in 2021, the United States began a rapid increase in manufacturing-related construction.

Source: FRED | St. Louis Fed

Onshoring production strengthens the United States's leadership in the future of transportation technology and attracts new and continued investments by domestic and multinational companies. In a recent example, on February 2, 2025, Honda increased its investment in the "next generation" of vehicle and battery manufacturing in Ohio by $300 million, bringing the total to $1 billion.

As shown in Table 1, the tax credits contained in the Inflation Reduction Act support both the supply of and demand for vehicle components.

- The Advanced Manufacturing Production Credit (45X) increases the supply of critical, American-made energy components, including batteries, and critical minerals, which are vital to U.S. security.
- The Alternative Fuel Vehicle Refueling Property Credit (30C), Commercial Clean Vehicle Credit (45W), New Clean Vehicle Credit (30D), and Used Clean Vehicle Credit (25E) stimulate demand for clean energy products, including those made in the United States that may also benefit from the 45X credit.

These credits are designed to work together. Without strong demand for EVs and charging infrastructure in the United States, demand for U.S.-made components would be insufficient to sustain those facilities. In other words, the consumer credits support the production credits by fostering U.S. demand for domestically sourced charging equipment, vehicles, and their associated components. By targeting both supply and demand, these credits help build a robust domestic supply chain in the United States capable of delivering vehicles that Americans want to buy.

Table 1: Federal EV and Battery Manufacturing Tax Credits

Tax Credit	**Claimant**	**Description**
Advanced Manufacturing Production Credit (45X)	Manufacturer operating in the United States	**10%** for electrode active materials **10%** for critical mineral production **$35/kWh** for battery cells **$10/kWh** for battery modules (or **$45/kWh** for modules without cells)
Alternative Fuel Vehicle Refueling Property Credit (30C)	Property Owner	**30%** of installation costs per port (**up to $100,000**) in a low-income or non-urban census tract when prevailing wage and apprenticeship requirements are met

Tax Credit	Claimant	Description
Commercial Clean Vehicle Credit (45W)	Customer	**30%** for electric vehicles placed in service for commercial purposes (including to be leased by an end-user) **up to $7,500** for vehicles under 14,000 pounds and **up to $40,000** for electric vehicles over 14,000 pounds Leased vehicles count as commercial vehicles
New Clean Vehicle Credit (30D)	Customer	**Up to $3,500** for purchasing a new electric vehicle that meets critical mineral sourcing requirements and **up to $3,500** for purchasing a new electric vehicle that meets component sourcing requirements, for a total credit **up to $7,500** per vehicle. Income limits of $300,000 for married filing jointly, $225,000 for head of household, and $150,000 for all other filers
Used Clean Vehicle Credit (25E)	Customer	**30% up to $4,000** for purchasing a used electric vehicle under $25,000Income limits of $150,000 for married filing jointly, $112,500 for head of household, and $75,000 for all other filers

Source: U.S. Code, Internal Revenue Service 30C, 45W, 30D, 25E

From 2009 through the end of 2024, companies operating in the United States announced $224 billion in new investments across 557 facilities, along with 243,000 associated jobs. Before August 2022, when the Inflation Reduction Act was enacted, investments totaled $104 billion in just over 13 years. After its enactment, $121 billion was pledged in just over two years. Job totals followed a similar pattern—before August 2022, 142,000 jobs were announced in just over 13 years. Between August 2022 and December 2024, 100,000 jobs were announced in just over two years. These patterns strongly suggest that federal tax credits have had a large impact on private sector activity.

The EV Supply Chain

The electric vehicle supply chain is highly globalized and heterogeneous, involving multiple stages of production. It includes:

- extraction and processing of critical minerals

- production and assembly of battery components cells and packs
- vehicle component manufacturing
- final vehicle assembly

The companies contributing to the supply chain range in size and economic impact from large and well-established multi-national automakers (e.g., Ford, Stellantis, and Toyota) to battery materials manufacturing startups.

Some pre-existing conventional vehicle infrastructure can be repurposed for EV assembly and parts manufacturing. Much of the supply chain, particularly around battery manufacturing, is still developing, however. Establishing and constructing new mines can take many years, making global trading partners with existing critical mineral resources essential. China holds a globally dominant position in critical mineral processing, resulting in a threat to U.S. security. Creating new supplies within the United States reduces the risk of disruption or market manipulation and alleviates security concerns.

Existing federal tax credits aim to address this issue by providing a framework for companies to build out a robust domestic supply chain. These long-term incentives lower operating costs as the market scales. As a result, coordination across the supply chain is progressing, with some automakers signing long-term agreements with mining companies to ensure steady supplies for battery production.

For example, Volkswagen's battery subsidiary PowerCo, has signed a deal with Novonix to secure synthetic graphite anode material from 2027 to 2032. Likewise, Sila Nanotechnologies will supply silicon anode material to Panasonic to support the company's U.S. battery supply chain. Different parts of the supply chain are interconnected and dependent on each other, so disruptions in one manufacturing area can significantly impact others.

Data Collection Methodology

This report analyzes investment data from the Clean Economy Tracker (CET)[1] supplemented by public sources such as the International Energy Agency (IEA), BloombergNEF, research reports, and news sources. These data provide an overview of the national and international manufacturing environment, global supply chains, and market developments.

The report also draws on corporate filings with the Securities and Exchange Commission, which detail financial performance and offer insight into the use of tax credits.

[1] To recreate the figures presented in this report use the filer sidebar and set Announcement Date to before January 1, 2025; select Batteries, Electric Vehicles, and Minerals for the Manufacturing Sector; select all Tech Categories except Storage; and select all Tech Sub-categories except Nuclear Fuel and Uranium.

The Stakes of Changes to Federal Tax Credits

Reducing access to or eliminating the EV-related tax credits would harm domestic EV manufacturing and sales. Importantly, it would also put the United States at a competitive disadvantage against China in the race for future transportation and energy jobs. This loss would cost American jobs, widen skills gaps in the workforce, reduce economic activity—particularly in communities heavily dependent on the industry—and diminish the United States's technological leadership. It would also harm industrial and energy communities that have recently gained new manufacturing jobs and training for the first time since losing them at the turn of the millennium. Appendix A includes additional information on the global context of U.S. manufacturing.

Domestic Manufacturing Impact

Within the United States, scaling back supportive EV policies threatens auto industry jobs at a time of significant investment in manufacturing. Existing tax credits—30D, 45W, 45X, 25E, and 30C—work together to incentivize domestic manufacturing of battery components and batteries, and EVs while supporting purchases by a wide variety of consumers. Without these incentives, companies may shift production outside the country in pursuit of lower labor and materials costs. This could harm both consumer choice by limiting available new vehicle options, and American companies by turning consumers toward cheaper imported cars. This pattern has historic precedence in the conventional vehicle market where it led to lost revenue, lost jobs, smaller tax bases for local governments, and increased national dependence on imported materials.

The 45X manufacturing credit and the 30D consumer tax credit work together to provide a meaningful incentive to onshore the EV supply chain. They serve as catalysts for production and influence consumer purchasing decisions. Reducing or eliminating either tax credit could significantly affect the economic viability of manufacturing EVs in the United States.

New facilities create jobs and drive local economic growth. By the end of 2024, 101,900 jobs existed at operational facilities eligible for federal EV and battery manufacturing tax credits. These jobs are especially vital in areas experiencing economic hardship. Since August 2022, companies have announced 17,000 jobs in energy communities—areas historically reliant on energy (often coal) production but that have suffered declines in those industries. New, well-paid blue-collar jobs have a significant impact on the economic health of these communities.

Outsized job growth has benefited Rust Belt states, reviving manufacturing in areas that lost industry to offshoring in the past. 27,000 EV and battery manufacturing jobs were announced across Michigan, Ohio, Pennsylvania, Illinois, and Indiana since August 2022. These manufacturing jobs generate tax revenue, induce additional employment opportunities, and often lead to new education and training for the surrounding community.

EV manufacturing is not the only domestic industry at risk—the EV charging industry is also a crucial component of the broader EV market ecosystem and is a source of manufacturing and installation jobs. The 30C charging infrastructure incentive encourages infrastructure development in low-income and non-urban communities. Building infrastructure for nascent markets like EVs is challenging because it requires sufficient consumer demand to pay for the installation and operation of the equipment. This problem is exacerbated in communities where consumers may be slow to adopt innovative technologies like EVs because of unfamiliarity or financial constraints.

The 30C incentive helps overcome these barriers, making charging station deployment feasible in new markets as demand grows. This increases consumer confidence and signals to manufacturers and investors that there is a commitment to supporting the technology, which can further drive innovation and market growth.

Jobs Impacts

Table 2 below highlights examples of the jobs spurred by the EV incentives for vehicle and battery assembly, vehicle purchases, and charger deployment in the Congressional districts with the highest investment.

- In North Carolina Toyota is building two battery manufacturing plants and a battery recycling facility in Randolph County.
- In Georgia, Hyundai is building vehicle assembly and parts manufacturing plants as well as partnering with LG Energy Solution to build a battery manufacturing plant, all in Bryan County. Seohan Auto is also building a parts manufacturing plant in Liberty County.
- Nevada's 2nd district is also attracting substantial investment: Tesla's battery manufacturing in Storey County, Lyten and Octillion Power Systems' battery manufacturing, and Aqua Metals' battery recycling in Washoe County. Additionally, Lyon county is home to lithium processing by Lilac Solutions while Thacker pass, a joint venture between Lithium Americas and General Motors, is another major Nevada lithium project.

Table 2: Announced Investments by Congressional District Since the Enactment of the Inflation Reduction Act

45X Rewards Battery Manufacturing and 30C, 30D, 25E, and 45W Create Demand for Battery and EV Manufacturing			
District	**EV Investments**	**EV Jobs**	**Median Household Income**
NC-09	$12.7 billion ($85,989 per capita for Randolph County)	3,500	$59,047 for Randolph County
GA-01	$7.3 billion ($145,278 per capita for Bryan County, $1,040 per capita for Liberty County)	5,100	$94,234 for Bryan County, $59,013 for Liberty County
NV-02	$6.6 billion ($107,668 per capita for Humboldt County, $2,865 per capita for Lyon County, and $2,008 per capita for Washoe County)	2,941	$79,946 for Humboldt County, $73,460 for Lyon County, and $85,600 for Washoe County
National	$121 billion	100,300	$77,839

30C Creates Demand for EV Charging Manufacturing			
District	**EV Investments**	**EV Jobs**	**Median Household Income**
OH-08	$150 million ($181 per capita for Hamilton County)	60	$70,816 for Hamilton County
MD-05	$49 million ($52 per capita for Prince George's County)	150	$100,708 for Prince George's County
NC-04	$41 million ($122 per capita for Durham County)	601	$79,501 for Durham County
National	$293 million	2,400	$77,839

Investment totals include batteries (EV only), electric vehicles, and minerals excluding uranium and nuclear fuel from August 16, 2022 to December 31, 2024.

Sources: Investments and jobs data from CET, demographics data from Census

The Risk to U.S. Global Competitiveness

The argument for reducing federal tax credit value assumes that the rest of the world will also slow or reverse their progress on EVs. Recent evidence shows, however, that this is not occurring, and that other major markets will continue to advance towards widescale EV deployment, leaving the United States further behind. Losing leadership in the United States will cost jobs in the energy and transportation sectors, increase dependence on technology and other products from potentially adversarial nations, and reduce influence over a critical sector of the global economy.

Vehicle Electrification is Growing Globally

EV sales have increased markedly in recent years and show no signs of reversing. In 2010, electric vehicles accounted for just 0.05 percent of global light-duty vehicle sales. By 2023, almost one-fifth of all cars sold were electric. China and Europe have led these increases, reaching approximately eight million and three million vehicles in annual sales, respectively (Figure 2). Within the United States, the market share for EVs reached a record 10.1 percent in the last quarter of 2024 at the same time consumers who were "very interested" in buying an EV hit a two-year high.

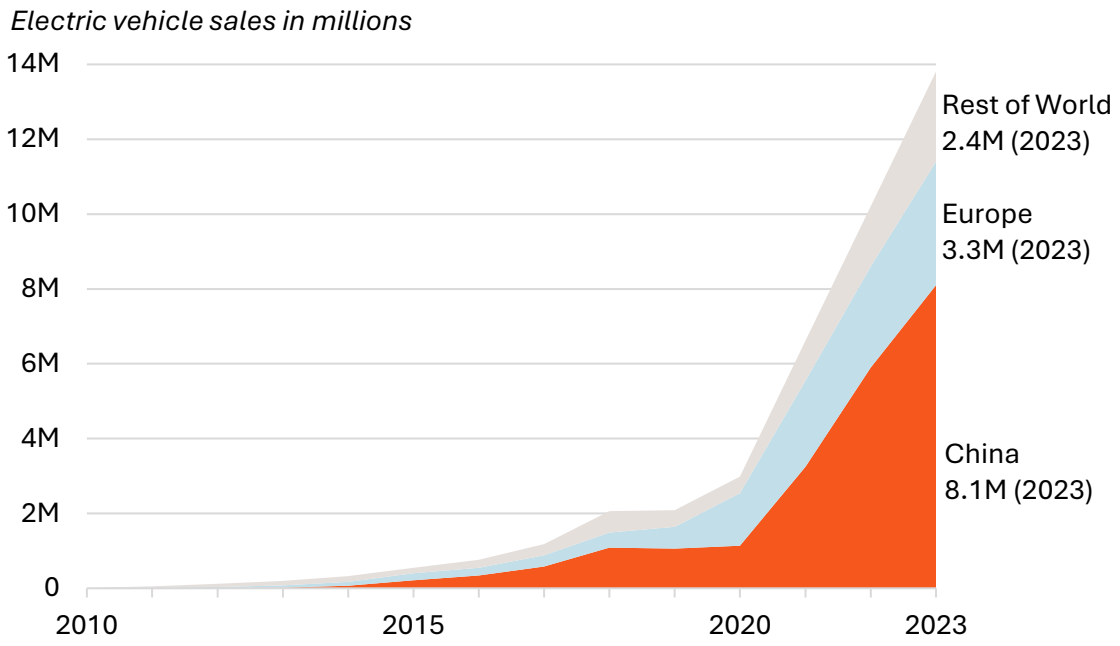
Global manufacturers are responding to growing sales by increasingly transitioning to EVs. Every major conventional auto manufacturer has set targets for a full or significant transition to EVs, including:

- American manufacturers (Ford and General Motors)
- European manufacturers (BMW, Mercedes-Benz, Stellantis, and Volkswagen)
- Asian manufacturers (Honda, Hyundai, Nissan, Toyota, and Volvo Cars).

While some timelines have been adjusted as automakers balance supply and demand, the momentum toward an electric future is clear.

In a virtuous cycle, sales of electric trucks have also grown as manufacturers continue to expand their product offerings. Global electric truck sales grew by 35 percent from 2022 to 2023. China accounted for 70 percent of global truck sales, while Europe accounted for 1.5 percent. The United States lags behind, with sales rising from 400 electric trucks in 2022 to 1,200 in 2023. However, the world is not slowing down on electric trucks, either. By 2040, the three truck manufacturers that control 70 percent of the medium- and heavy-duty market—Daimler Truck, Volvo Group, and Navistar—plan to sell only zero emission vehicles.

Figure 2: Annual New Electric Light-Duty Vehicle Sales in Major Markets, 2010-2023



Source: International Energy Agency

Competitiveness is Critical to U.S. Security and Economic Growth

Leading a key export market like vehicles can enhance a country's global influence and soft power fostering stronger diplomatic ties and increasing leverage in international trade negotiations. Chinese exports of passenger vehicles in 2023 were worth $78 billion, of which $34 billion were electric vehicles. In comparison, U.S. exports of passenger vehicles in 2023 were worth $63 billion, of which $7 billion were electric vehicles.

Batteries are also a critical market in the new energy economy. In 2023, the United States exported approximately $3 billion worth of lithium-ion batteries, while China exported approximately $65 billion. Overall, China produced 70 percent of the world's EV batteries that year and has announced plans to reach six terawatt-hours of production capacity by the end of 2025. In 2023, the United States imported $19 billion worth of lithium-ion batteries, $13 billion of which came from China.

To stay competitive as demand grows, the United States must expand its domestic manufacturing supply chain. Targeted federal support, such as the existing tax credits, is already supporting U.S. manufacturers efforts to scale up production and compete globally.

Expanding domestic manufacturing also reduces reliance on a supply chain from countries with national security or human rights concerns. For example, most lithium-ion batteries in

EVs today use cobalt, a mineral primarily sourced from The Democratic Republic of the Congo (DRC), a country with a history of human rights abuses. Moreover, Chinese companies control much of the battery supply chain including 80 percent of cobalt mining operations in DRC. Even alternative batteries that do not rely on cobalt, such as lithium iron phosphate batteries, are primarily produced by Chinese companies. In addition to controlling most battery mineral processing (lithium, cobalt, graphite, and manganese), China leads cell component processing and cell manufacturing.

U.S. automakers have voiced concerns about China's rising influence in the vehicle market. The heads of both Ford and General Motors expressed in an industry forum in early 2024 that they would consider partnering with other automakers to lower costs and compete with low-cost Chinese EV makers both at home and abroad. These potential partnerships are especially relevant to consumers in the United States who frequently cite high vehicle cost as a key barrier to EV ownership, even among interested buyers. Removing tax incentives for EV production and purchase may make these products less accessible to American consumers who want them.

Future U.S. security and economic resilience will depend in part on reducing Chinese influence throughout the EV supply chain. The U.S.-China Economic and Security Review Commission, convened by the U.S. Congress, recognizes the importance of U.S. interests in building a domestic supply chain. According to the Commission, overreliance on China for components creates geopolitical advantages that China can exploit.

The Value of Federal Tax Credits to the EV Market and to the Taxpayer

The 30D, 45W, and 25E purchase and lease incentives help consumers and companies adopt unfamiliar and emerging technology like EVs by lowering upfront costs. Removing or restricting access to these incentives will leave more consumers out of the EV market and make it harder for U.S. manufacturers to scale and deliver new EV technology.

The U.S. Treasury reports tax expenditures[2] and outlays for clean vehicle credits (30D, 45W, and 25E), the advanced manufacturing production credit (45X), and the tax credits for refueling property (30C) for each fiscal year (see Table 3). While the direct cost to the taxpayer is

[2] The U.S. treasury says tax expenditures "describe revenue losses attributable to provisions of Federal tax laws which allow a special exclusion, exemption, or deduction from gross income or which provide a special credit, a preferential rate of tax, or a deferral of tax liability."

measurable, predicting future costs of these tax credits is challenging because they depend on factors such as U.S. manufacturing levels, EV adoption rates, and charger deployment. The cost of these incentives therefore rises with the growth of the EV market, bringing a proportionally higher level of domestic manufacturing activity and jobs due to the structure of the incentives.

Table 3: Federal Tax Expenditures and Outlays in FY 2023-2024 (million $)

Federal Fiscal Year	Clean Vehicles Credits	Refueling Property Credit	Advanced Manufacturing Production Credit	Announced Jobs	Announced Investments
2023	$10,560 $0	$170 $0	$430 $0	76,200	$77,100
2024	$14,080 $3,130	$280 $0	$870 $6,000	30,600	$40,200

All financial figures are in millions of U.S. dollars. For the first three columns on tax incentives, the first line is expenditures, and the second line is outlays. The announced jobs and investments are provided for context. Clean Vehicles Credits includes 30D, 45W, and 25E. Refueling Property Credit is 30C and Advance Manufacturing Production Credit is 45X.

Source: Tax Expenditure Budget for Fiscal Year 2026

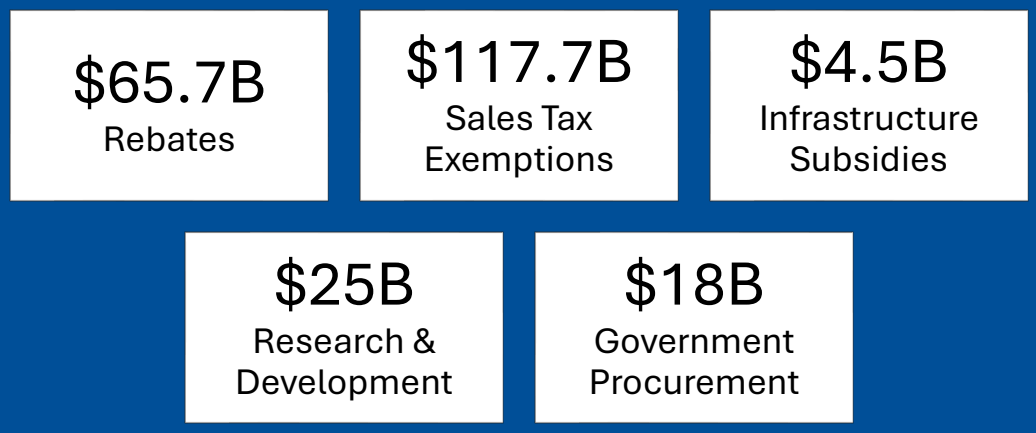
Federal Tax Credits Are Spurring U.S. Private Investment

In the United States, private companies have significantly increased investment in U.S. EV manufacturing since the enactment of the Inflation Reduction Act. However, the United States is racing to catch up with China, which has spent over $200 billion to establish itself as the global leader in the EV market (see Box 1). Pledged investment in U.S. EV and battery supply chains averaged $61 billion per year from 2022 to 2024. Meanwhile, China's government spending reached $45 billion in 2023. Rolling back or removing the U.S. federal tax credits could discourage domestic investments and cause withdrawals or closures while global competitors continue to make gains.

Box 1: China's Massive Public Investment in the EV Industry

From 2009 to 2023, China spent an estimated $231 billion subsidizing its EV industry through rebates, sales tax exemptions, infrastructure subsidies, research and development, and government procurement. Spending in 2023 alone reached $45 billion, 2.5 times 2018 levels (see Figure 3).[3]

Figure 3: China Subsidized the Growth of its EV Industry, 2009-2023



Source: CSIS

EV investments in the United States were announced in 42 states at over 550 facilities, and impacting every region in the country. Since 2000, The states receiving the highest private investment were Michigan, Georgia, and North Carolina (Figure 4). The states with the most jobs announcements were Georgia with 27,037 job announcements, California with 26,477, and Michigan with 26,384.

[3] Estimated investment levels for 2024 were not available at the time of report publication.

Figure 4: Top Five States for EV Manufacturing Investment Through December 2024

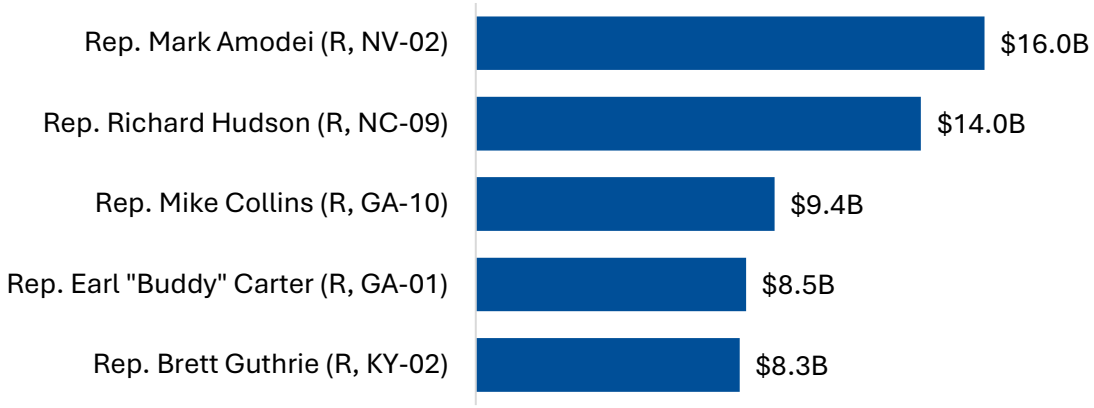
Investment totals count all investments in batteries (EV only), electric vehicles, and minerals excluding uranium and nuclear fuel through December 31, 2024.

Source: Clean Economy Tracker

The Southeast is quickly emerging as the "battery belt" due to the concentration of battery manufacturing in these states. The Congressional districts with the most announced investment are all represented by Republicans, led by Nevada's 2nd at $16 billion, followed by North Carolina's 9th, Georgia's 10th, Georgia's 1st, and Kentucky's 2nd (see Figure 5).

The Congressional districts with the most announced jobs were California's 17th and Texas's 35th, both represented by Democrats, as well as Nevada's 2nd, Georgia's 10th, and Georgia's 1st, represented by Republicans. The high job numbers in Texas and California are the driven by Tesla, an early mover in the EV space which has expanded its existing facilities in recent years.

Figure 5: Top Five Congressional Districts for EV Manufacturing Investment Through December 2024



Investment totals count all investments in batteries (EV only), electric vehicles, and minerals excluding uranium and nuclear fuel through December 31, 2024.

Source: Clean Economy Tracker

Vehicle Manufacturer Statements

Both foreign and domestic companies investing in the EV supply chain have cited existing federal tax credits as a key factor motivating their decisions to invest in the United States. These acknowledgments have been made in press interviews, public statements, and filings with the Securities and Exchange Commission (SEC).

Investment by International Companies

Volvo Car AB's CEO stated that the recently introduced federal tax incentives reshape their supply chain, and drove "more [battery and minerals] technology into North America." As a result, Volvo began production of their new electric SUV in South Carolina, the first time that the company has started production on a new SUV model outside of Europe.

In 2024, the associate general counsel at Samsung's battery manufacturing unit described the combination of the EV consumer tax credit and the EV manufacturing credit as a "total game changer." He explained that the manufacturing credit offers the "carrot" to companies to build their cars and components in the United States while the domestic content requirements in the consumer tax credit act as the "stick" to ensure compliance for full credit eligibility.

Additionally, Hyundai and Kia are significantly increasing their EV production in the United States, reportedly securing 75 percent of the production lines at SK On's battery production plants in Georgia.

Investments by American Companies

Domestically headquartered companies are also evaluating their options, considering the position of the American automotive industry in the global economy. Some have published forecasts of their potential or actual earnings from these tax credits.

For example, in an earnings call in October 2022, Ford CEO Jim Farley stated that the company benefited considerably from the federal tax incentives. Ford estimated that the 45X battery production tax credit could amount to $7 billion from 2023 to 2026. Additionally, between 55 and 65 percent of commercial vehicle customers could access the commercial vehicle tax credit, while retail customers could take advantage of the passenger EV tax credit. Farley referred to it as a "fairly level playing field…as our supply chain of critical minerals extracted or processed in the U.S. and FTA develops." Finally, Ford claimed federal incentives for geothermal power, converting vehicle assembly plants to manufacture EVs, and EV component manufacturing all benefit the company.

Executives have continued to make public statements on the importance of federal tax credits:

- In April 2023, then-Stellantis CEO Carlos Tavares called the 30D tax credit a "major driver for the industry because it impacts the affordability [of EVs]".
- General Motors board member and former Tesla executive John McNeill stated that the federal tax credits "level the playing field" with China and that any rollback of incentives would benefit China and harm U.S. global competitiveness in the EV space.
- Ford's Jim Farley has maintained his position in recent months, saying "[m]any of our plants in the Midwest that have converted to EVs depend on the production credit. We would have built those factories in other places, but we didn't." at the Detroit Auto Show in January 2025. Farley followed that statement up at an investor conference in February, where he was explicit about the risk to Ford's business of losing the credits, saying that "[w]e've already sunk capital. And many of those jobs will be at risk" if Congress repeals the tax incentives.

Corporate Financial Filings

Many EV and battery companies have referenced federal tax credits in their 10-K SEC filings. Ford, General Motors, Rivian, and Tesla cited both the manufacturing and consumer purchase tax credits as drivers of success and profitability for their companies (see Table 4). Collectively, these four companies have announced $16.4 billion of investment and almost 27,000 jobs in U.S. EV or battery manufacturing since the federal tax credits were enacted.

Table 4: Automaker SEC Filings from 2022-2023 Mentioning Federal Tax Credits and their investments through December 2024

Manufacturer **Announced Investment & Jobs Through 2024**	**Statement**
Ford **$11.3 billion** **12,600**	"The IRA's incentives are having and are expected to have material impacts on the automotive industry and Ford…Further, the degree of success of some of our investment strategies depends upon IRA tax credit eligibility and for those credits to continue to remain available through the currently contemplated expiration. We ultimately expect the IRA to benefit Ford and the automotive industry in general…Automakers that better optimize eligibility for their vehicles, as compared to their competition, will have a competitive advantage."
General Motors **$16.7 billion** **8,100**	"IRA benefits, including credits and lower material costs, are expected to materially affect net income in the future." And "In addition, the success of our long-term strategy is dependent on consumer adoption of EVs. If we are unable to successfully deliver on our EV strategy, it could materially and adversely affect our results of operations, financial condition and growth prospects, and could negatively impact our brand and reputation."
Rivian **$10.6 billion** **14,300**	"Rivian was able to claim the module assembly benefit starting in 2023" (referencing 45X) and "There are various government policies, subsidies, and economic incentives designed to increase EV adoption. For example, the Inflation Reduction Act of 2022 offers a tax credit for EV purchases or leases contingent upon pricing

Manufacturer Announced Investment & Jobs Through 2024	Statement
	limits, customer income limits, and assembly, manufacturing, and sourcing requirements. Any reduction or elimination of these incentive programs could have a direct im-pact on demand for our vehicles. In addition, failure to meet the tax credit eligibility requirements may place our vehicles at a price disadvantage and could have a material adverse impact on our business, prospects, financial condition, results of operations, and cash flows."
Tesla **$15.2 billion** **46,300**	"Our costs of revenue were also positively impacted by the United States dollar strengthening against our foreign currencies as compared to the prior periods and by the IRA manufacturing credits earned during the current year." And "For the year ended December 31, 2023, the impact from our IRA incentive was primarily a reduction of our material costs in our consolidated statement of operations."

Source: Securities and Exchange Commission

Statements from Elected Officials

Members of Congress have also clearly recognized the importance of the federal tax credits to the communities they represent.

- In August 2024, 18 Republican Members of Congress from 11 states sent a letter to Speaker Mike Johnson that emphasized the role of the EV tax credits in attracting investments to their districts. Since August 2022, companies have announced 10,600 new jobs and $15.5 billion in investments in EV, battery, or minerals processing facilities across these 18 congressional districts.
- On January 22, 2025, 14 Republican Members of Congress from 10 states testified before the Ways and Means Committee in favor of energy tax credits in the Inflation Reduction Act.
- In March 2025, 21 Republican Members of Congress (including seven who had not signed the August 2024 letter) sent a new letter to Ways and Means Chair Jason Smith advocating against repeal or phaseout of the credits.

- Republican elected officials have also urged caution when considering changes to the federal tax code. Representative Buddy Carter of Georgia stated "[fellow congressional Republicans] understand that there may be parts of [the federal tax code] that can help us secure our supply chain. There may be parts of it that help us with domestic manufacturing…and if there are, then we should look at keeping it." Since August 2022, Companies have invested $16.1 billion and announced 10,300 new jobs in Georgia.

Sustaining the U.S. Manufacturing Renaissance

Federal tax incentives—including 45X,30C, 30D, 25E, and 45W—work together to strengthen manufacturing supply and consumer demand for electric vehicles and related infrastructure. Combined, these incentives have contributed to the emerging manufacturing renaissance in the United States. Onshoring supply chains enables U.S. companies to reduce reliance on imports from China, which currently controls most of the EV supply chain and is increasingly exporting EVs to other parts of the world.

Through December 2024, companies have announced $224 billion in investments and plan to create 243,000 jobs at facilities that stand to benefit from federal tax credits. Without demand-side credits to support demand for of U.S.-made components, battery manufacturers and critical mineral producers and processers may struggle to find a market for their goods. Removing or making the credits too difficult to use could endanger billions of dollars investments and risk many thousands of jobs.

Moreover, these tax credits level the playing field, allowing U.S. companies to compete fairly in the global market. As EV demand and production continue to rise worldwide, eliminating or restricting the federal tax credits will ensure the United States gets left behind, unable to compete with China or Europe for the future of transportation and energy jobs.

Acknowledgments

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Appendix A: U.S. Manufacturing in the Global Context

In recent decades, the United States has lost its title as the largest global vehicle manufacturer first to Japan and then to China, and Europe has demonstrated its ability to maintain a strong position in the industry.

In 1999, General Motors, Stellantis (DaimlerChrysler at the time), and Ford held 68 percent of the domestic market, but by 2023 that share fell to 39 percent. Trade agreements opened new markets in Mexico and Canada, increased automation reduced the need for labor, and an increased presence from Asian and European companies in the United States resulted in a smaller footprint for U.S.-based manufacturers. Looking ahead, companies operating in the United Sates have increasingly focused on where the sector is universally headed worldwide: an increasingly electrified transportation system.

Companies in the United States are building new capacity in vehicle assembly, batteries, critical minerals, and charging infrastructure to prepare for a future with widespread transportation electrification. The recent increase in announced investments from manufacturers has strengthened the U.S. position globally, but government support helps to underpin the burgeoning industry. Altering the environment in which companies have made these investment decisions puts them at risk.

Vehicle Assembly

The United States was the world's largest vehicle manufacturer until 2006, when Japan briefly took the lead and was soon surpassed by China in 2009, which has maintained it since. In 2023, China produced more than 30 million vehicles (including 5 million vehicles for export) compared to the U.S. total of 11 million vehicles produced (including 2.5 million exports).

China has steadily gained market share in EV sales over the past decade. Chinese carmakers supplied 34 percent of the global EV market in 2015, but less than ten years later, in 2023, this was up to 53 percent. Chinese exports of EVs have grown in recent years, with 55 percent of exports by value going to Europe. The rise of Chinese EVs being sold in Europe was rapid, with the market share growing from a 0.5 percent in 2019 to 9.3 percent in the fourth quarter of 2023.

Meanwhile Europe, the second largest EV market behind China, is striving to continue being its own manufacturing hub.[4] Three European automakers were among the top ten brands for global EV sales in 2023: Volkswagen (five percent market share), BMW (four percent), and Mercedes-Benz (three percent). European exports of EVs rose to about 770,000 in 2023, about 19 percent of the four million EVs exported globally in that year.

Vehicle Battery Manufacturing

Batteries are the single most expensive component in an EV and are where a considerable amount of intellectual property exists for EVs. China had more than 1,750 gigawatt-hours (GWh) of lithium-ion battery manufacturing capacity in 2023, which exceeds current global demand. The IEA estimates that Europe and the United States had 110 and 74 GWh of lithium-ion capacity, respectively, in 2023. According to the European think tank Bruegel, announced battery production capacity in Europe is around 540 GWh, which includes all battery chemistries. According to Argonne National Laboratory, the United States had a planned capacity of 300 GWh in 2024.

Table 5: China has a sizeable lead on battery manufacturing capacity for EVs

Country or Region	Existing Li-On Battery Capacity (GWh)	Planned Battery Capacity Total (GWh)	EVs Supported by Existing Battery Capacity (million EVs)	EVs Supported by Planned Battery Capacity (million)
China	1,750	Unknown	18-29	Unknown
Europe	110	540	1.1-1.8	5.4-9.0
United States	74	300	0.74-1.2	3.0-5.0

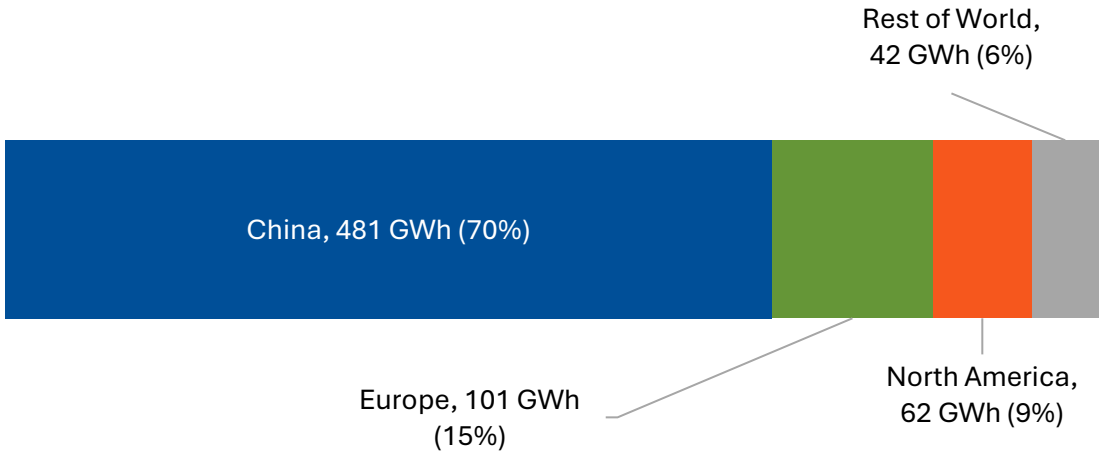
China has capacity to produce batteries for up to 10 times the number of EVs as the United States today and more than three times the number well into the future. This calculation assumes an EV battery size is between 60 and 100 kilowatt-hours.

Source: IEA, Bruegel, Argonne National Laboratory

[4] Defined here as the 27 European Union Member Countries, the United Kingdom, and Norway.

Actual production throughput looks analogous to capacity. According to the International Energy Agency, China led production of lithium-ion batteries for EVs in 2023 at 481 GWh (70 percent of global production). Europe was in second place with 101 GWh (15 percent of global production), followed by North America at 62 GWh (nine percent), see Figure 6. China is also making moves to maintain its industry dominance, pledging $845 million in May 2024 for all-solid-state batteries, which the country sees as the next generation technology. The United States is at risk of falling behind on scientific advancements and losing intellectual property rights to important global economic technologies to countries more willing to invest in this future path.

Figure 6: Lithium-Ion Battery Production for EVs in 2023



Source: International Energy Agency

Critical Mineral Processing

The EV battery supply chain currently relies heavily on critical minerals sourced from across the globe. Critical minerals are essential to national security, are key to the manufacturing of technologies such as EV batteries, and are at risk of supply constraints due to geopolitical risks or the political instability of source countries. American automakers and battery companies have recently invested heavily in mineral production and processing, as well as the production of anodes, cathodes, and other essential battery components. Nonetheless, in 2023, China accounted for 80 percent of global anode production and 90 percent of anode materials production. Critical mineral extraction is also often concentrated to specific

nations, with China responsible for 73 percent of graphite extraction, the Democratic Republic of the Congo responsible for 72 percent of global cobalt supply, and Australia producing 48 percent of global lithium in 2022. Adding to the concentration issue, Chinese companies own 80 percent of cobalt mining operations in Democratic Republic of the Congo.

The United States domestic supply of minerals needed for battery and chips manufacturing went relatively under-explored until this production renaissance. The United States has mineral resources across 681 deposits, according to a recent Department of Commerce report, of which 244 have yet to be produced. There is some level of domestic production for 63 of the more than 100 minerals tracked by the U.S. Geological Survey.

Since 2009, the United States has seen $25.7 billion in announced private investment in critical minerals extraction and processing, the majority of which are in lithium mining and processing.[5] Additionally, the requirements for receiving the 30D purchase tax credit include avoiding minerals extracted from or processed in a Foreign Entity of Concern (FEOC). These FEOCs are China, North Korea, Russia, and Iran. While this does not cover every facet of the minerals supply chain, it motivates sourcing from free trade partners such as Australia and Canada, and moves the United States supply chain for batteries away from China.

The U.S. federal government across multiple Administrations has committed to improving the domestic supply chain for minerals, with multiple actions through Executive Orders and laws emphasizing funding and research to bolster this growing industry. Given the importance of a long timeline for mineral extraction, continuous support is necessary to keep the industry globally competitive and domestically useful.

Charging Manufacturing

Manufacturing of charging equipment is taking place worldwide with considerable activity in Europe, Asia, and the United States. Many major manufacturers produce equipment in more than one region to accommodate their markets. For example, Tesla produces Superchargers in Shanghai, China and in Buffalo, New York. ChargePoint, another major charging equipment manufacturer, builds chargers in the United States and in Asia. A European-based manufacturer, ABB, builds chargers in the Germany, Italy, China, and the United States.

[5] This includes facilities focused on lithium, graphite, cobalt, nickel, and manganese. It does not include investments in copper or nuclear fuel.

Unlike vehicles, shipping some charging equipment, like Level 2 chargers, long distances is cost effective which encourages manufacturing to occur in countries with lower cost materials and labor. The 30C tax credit does not require companies to manufacture the charging equipment in the United States for eligibility, nevertheless, an immediate upswing in domestic manufacturing announcements followed its creation. Since 2022, over $400 million has been announced to manufacture chargers at more than 30 facilities throughout the United States.

The buildout of this manufacturing capacity is critical to meet demand for charging from a growing EV market. See Box 2 for more information on charger deployment over time. Additionally, according to a 2023 Pew Research Center poll, people are more positive about EVs the closer they live to a charging station, and are more likely to consider purchasing one. Availability of charging is frequently cited as the top or near top reason drivers reject the purchase of an EV.

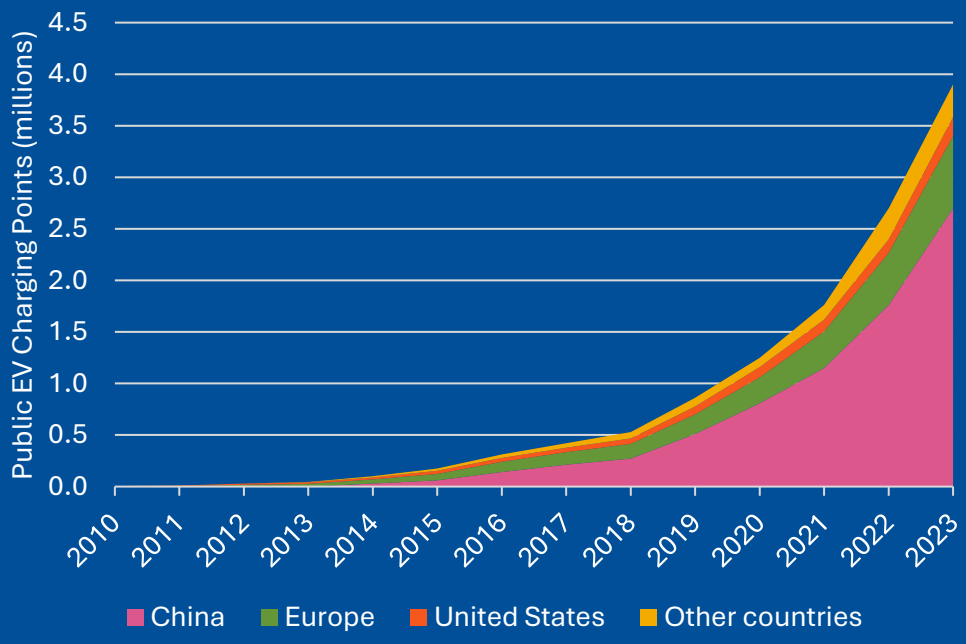
U.S. Manufacturers Look Ahead

As demand for electric vehicles and battery grid storage rises, expanding the U.S. EV supply chain will be critical for global competitiveness. Global EV demand went up 40 percent between 2022 and 2023, and is expected to more than quadruple by 2030, including significant rising demand for EVs within the United States. This will require large increases in extraction of critical minerals as well as manufacturing of battery components globally, and American competitiveness as a global supplier will depend on the strength of the domestic supply chain and manufacturing base. Additionally, vehicle assembly and manufacturing outside of battery production will remain essential to develop in tandem with domestic battery production.

Box 2: Infrastructure Expands to Meet Market Demand

Evidence for the global expansion of the EV industry can also be tracked by looking at global charger installation. It is difficult to estimate total installations of private chargers, but public charging is increasing quickly across the globe. From 2015 to 2023, public chargers grew from 44,000 to 4 million—an almost 100-fold expansion (see Figure 7). Growth shows no signs of stopping, as the International Energy Agency expects the world will reach 15-16 million public chargers by 2030. However, by the end of 2023, there were just 183,000 public chargers (including both Level 2 and DC fast charging) in the United States, a small proportion of global installation. By comparison, China had 2.7 million, and Europe had 700,000.

Figure 7: Global Public EV Charging Points, 2010-2023



Data on charging points installed in China from 2010 to 2014 are not included in the underlying dataset.

Source: International Energy Agency

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