U.S. Electric Vehicle Manufacturing Investments and Jobs

Turning Investment into Action

January 2025

Environmental Defense Fund

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This report examines the enormous progress the U.S. has made in electric vehicle (EV) manufacturing and the associated job growth. It summarizes the federal policy driven acceleration in private investments in the EV ecosystem that has occurred in the last few years and where those investments are occurring. This includes announced investments in manufacturing EVs of all sizes, EV components, EV batteries, EV battery components, and EV battery recycling.

Key Takeaways – January 2025

- **Investment.** Over the last ten years, manufacturers have announced $198 billion in concrete investment in U.S. EV and EV battery manufacturing facilities. Federal policies have dramatically expanded and accelerated these investments: 65% of announced EV investments have occurred since passage of the Inflation Reduction Act (IRA) in August 2022 and 83% have occurred in the last 3 years since passage of the Bipartisan Infrastructure Law (BIL).
- **Jobs.** Supported by these investments, over the last ten years, manufacturers have announced 194,600 new U.S. EV-related jobs. Federal investments and incentives that are specifically designed to onshore the EV manufacturing supply chain have likewise substantially expanded and accelerated new job announcements. Of all the EV jobs announced since 2015, 56% were announced since the passage of the IRA in August 2022 and 75% were announced since the passage of the BIL in November 2021. Announced EV and battery manufacturing could also generate up to 826,000 additional jobs in indirect/secondary employment.
- **Turning Investments into Action.** Over 100 projects announced since the passage of the IRA are either under construction or have started production. This represents 67% of the investments and jobs announced during that time period, demonstrating how federal policies including the 30D, 45W, and 45X tax credits have swiftly translated into projects that are producing jobs in communities around the country. Sustained support for these policies is vital to these projects and the jobs they are producing. Global EV and battery manufacturers have announced aggressive and sustained investment needs worldwide to support the EV transition over the next decade so there remain opportunities to further grow domestic investments but only if the U.S. remains an attractive manufacturing destination.
- **States.** Ten states account for 84% of announced EV manufacturing investments. Georgia has over $26 billion in investment supporting 31,600 jobs. Michigan and North Carolina have seen over $22 billion and $20 billion in investment, respectively, supporting 37,100 created and retained jobs in both states combined.
- **Congressional Districts.** Over 83% of the announced EV manufacturing investment is in districts held by Republican representatives. Twenty-five congressional districts account for more than 70% of the announced investments with the GOP representing 22 of those districts.
- **Production Capacity.** In 2028, U.S. EV manufacturing facilities will be capable of producing approximately 4.7 million new electric vehicles annually (which represents 32% of new vehicles sold in the U.S. 2023). In 2028, U.S. battery manufacturing facilities will be capable of producing 1,083 Gigawatt hours (GWh) of EV batteries, sufficient to supply 12.1 million new electric passenger vehicles each year, 76% of vehicles sold last year.

Announced EV, EV Battery, Battery Component, and Battery Recycling Investment & Employment

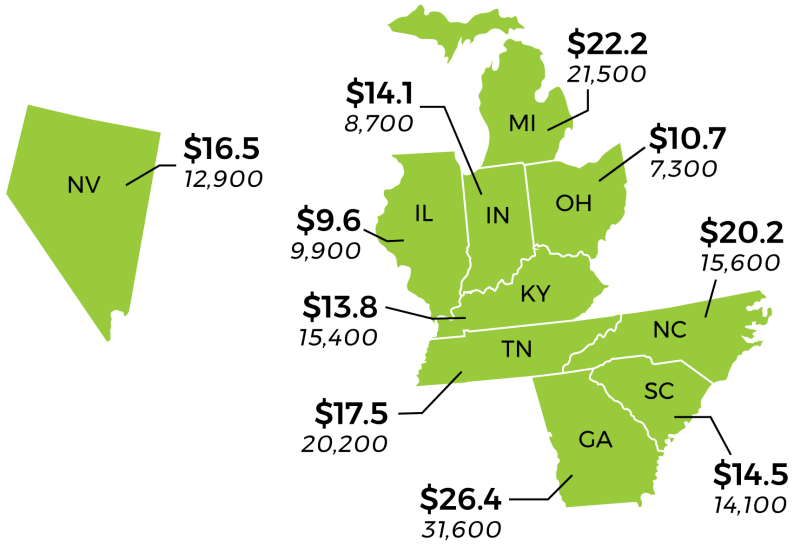
January 2015 - November 2024

Manufacturing	Investment	Announced New Jobs
Passenger vehicles	$47.3 billion	64,400
Medium- and heavy-duty vehicles	$6.5 billion	11,100
EV components	$4.8 billion	11,300
EV batteries	$100.6 billion	83,200
EV battery components	$32.7 billion	22,300
EV battery recycling	$5.7 billion	2,300
Total	**$197.6 billion**	**194,600**

84% of Announced Investment is in 10 States

$ Billions of Investment
Number of new jobs

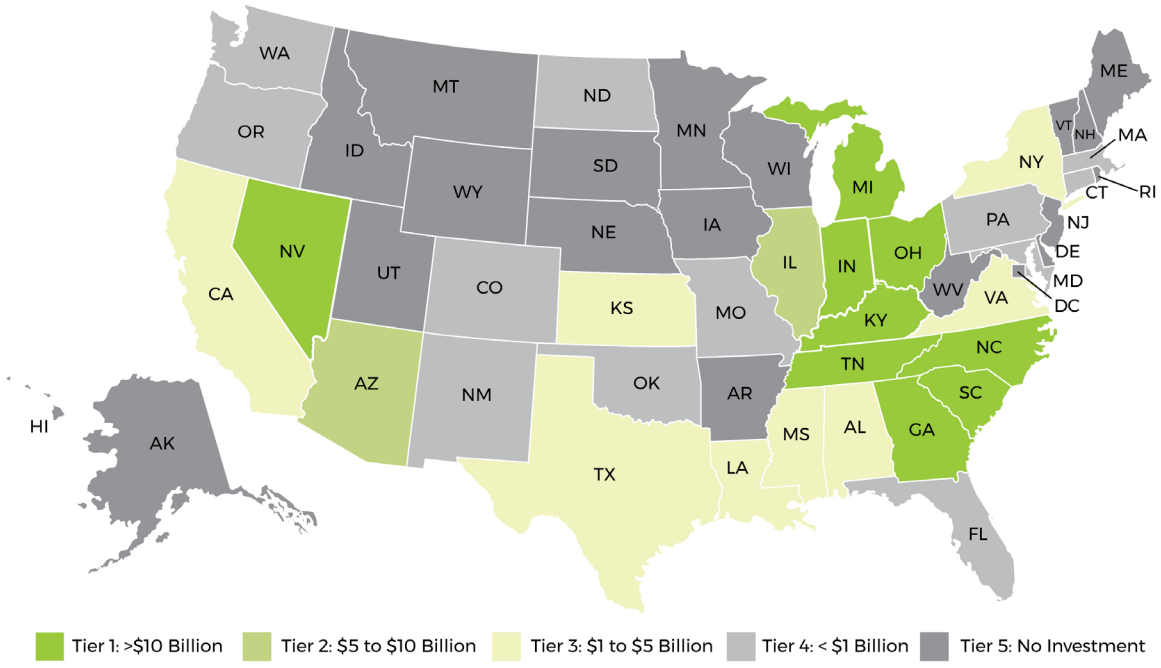
Investment has also been spurred by over $31 billion in federal, state, and local incentives.



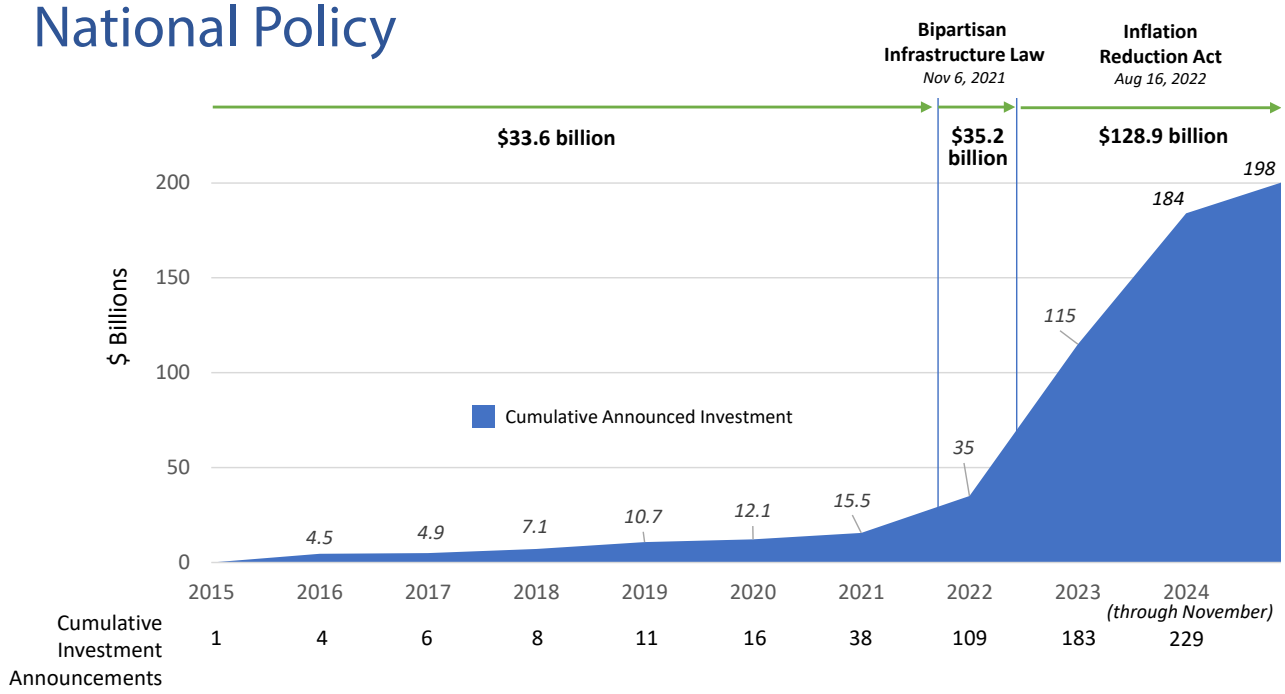
State	Total Announced Investment *($ billions)*
Georgia	$26.4
Michigan	$22.2
North Carolina	$20.2
Tennessee	$17.5
Nevada	$16.5
South Carolina	$14.5
Indiana	$14.1
Kentucky	$13.8
Ohio	$10.7
Illinois	$9.6
Other	$32.1
Total	**$197.6**

Announced EV Ecosystem Investment

- 229 distinct manufacturing investments announced at 208 project sites in the past 10 years
- $198 billion in private investment announced
- These investments will result in 194,600 new jobs, and could generate up to 826,000 addition jobs in secondary employment[1]



EV Investment is Spurred by National Policy



$128.9 billion in announcements, representing 65% of all announced EV investments, have occurred since August 2022 and the passage of the IRA.

[1]See methodology for further detail

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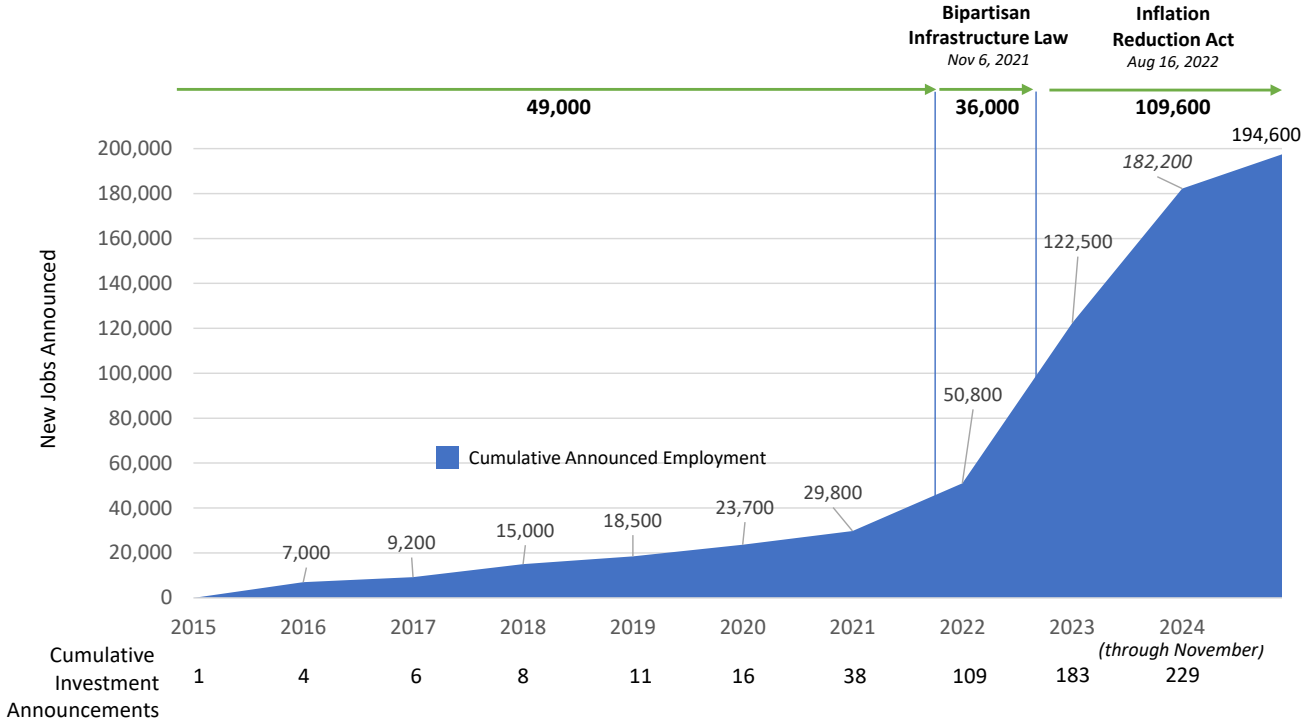
New EV Job Announcements Accelerated by National Policy

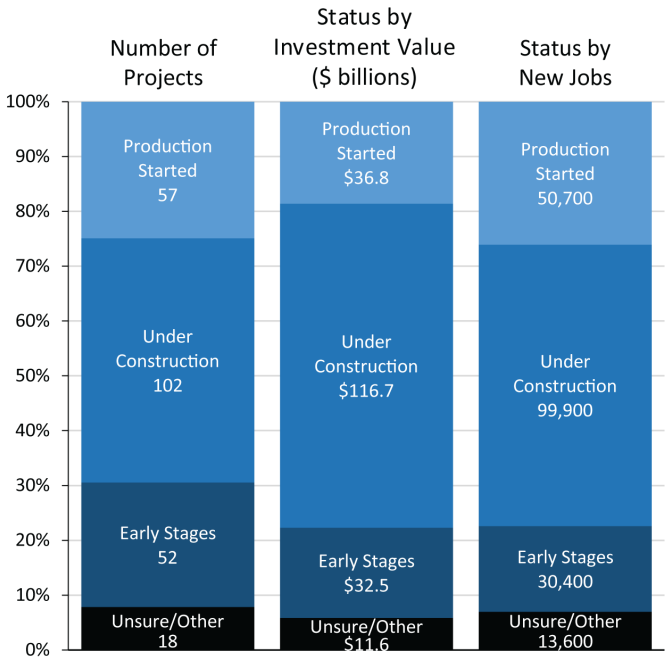
109,600 announced new jobs, representing 56% of all EV job announcements, have occurred since August 2022 and the passage of the IRA.



State	Announced New Jobs
Georgia	31,600
Michigan	21,500
Tennessee	20,200
North Carolina	15,600
Kentucky	15,400
South Carolina	14,100
Nevada	12,900
Illinois	9,900
Arizona	9,700
Indiana	8,700
Other	35,000
Total	**194,600**

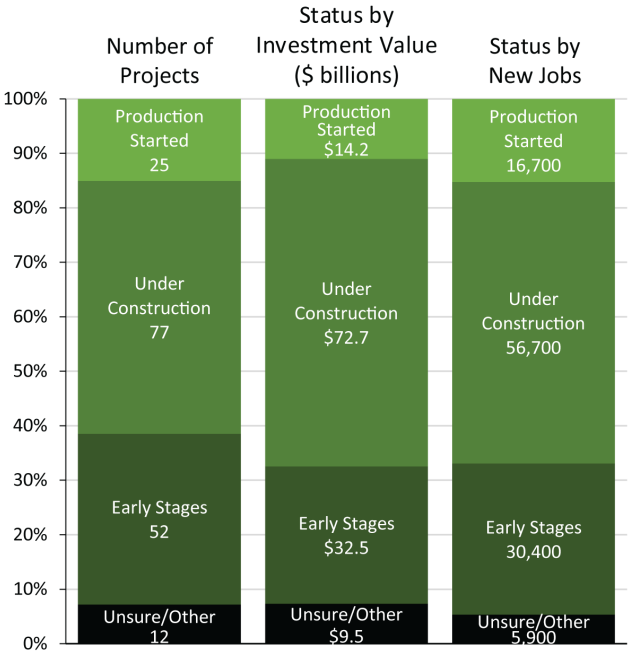
Status of Announced EV Manufacturing Projects

Status of EV Manufacturing Projects
Announced Since January 2015



- Of the 229 projects* announced since January 2015, 69% have started production or are under construction.
- Those projects account for over 77% of the announced investments and jobs.
- 57 projects worth $37 billion and creating over 50,000 jobs have already started manufacturing EVs, batteries, or battery components in the U.S.
- An additional 102 projects are under construction. These projects account for $117 billion and almost 100,000 new jobs.

Status of EV Manufacturing Projects
Announced Since IRA Passage (August 2022)



- Looking just at projects announced since the passage of the IRA, there is also a tremendous amount of progress.
- A total of 166 project announcements have occurred since August 2022.
- Projects accounting for 67% of the investments and jobs have either started production or are actively being constructed, demonstrating how quickly federal policies catalyzed new manufacturing in the U.S.

** The 229 projects are spread across 208 facilities. Some facilities have multiple projects that were tracked separately because they were announced at different times or they have both battery and EV manufacturing occurring, with different production start times.*

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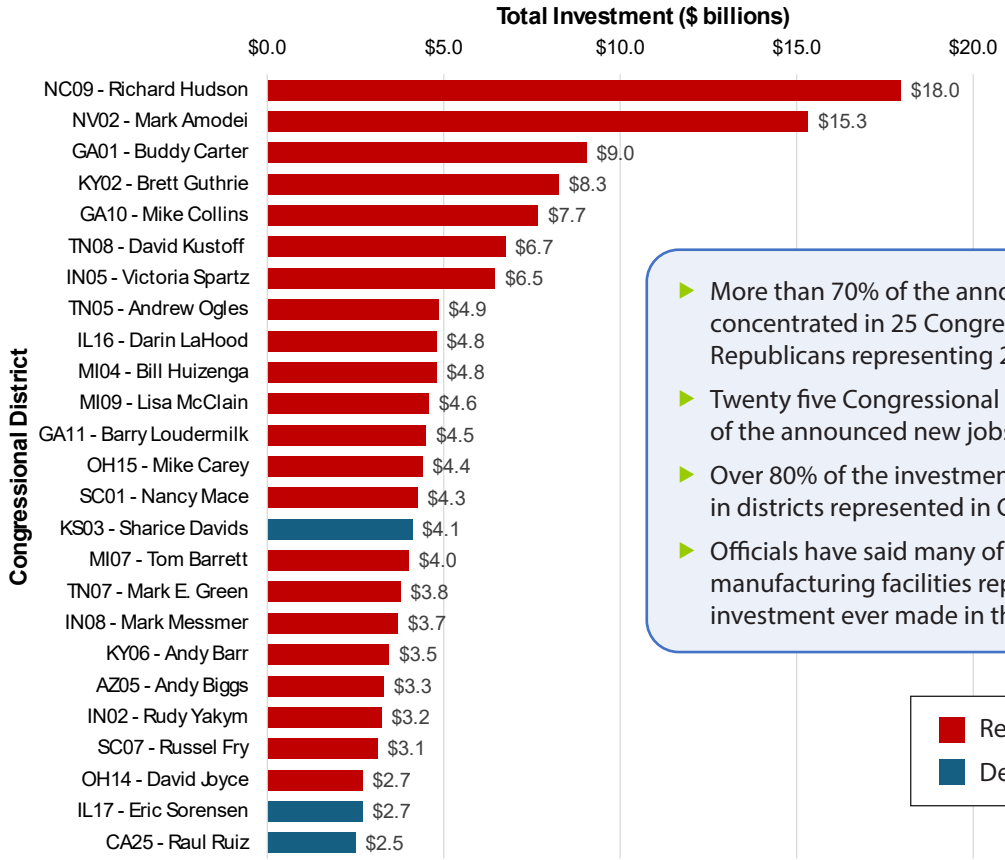
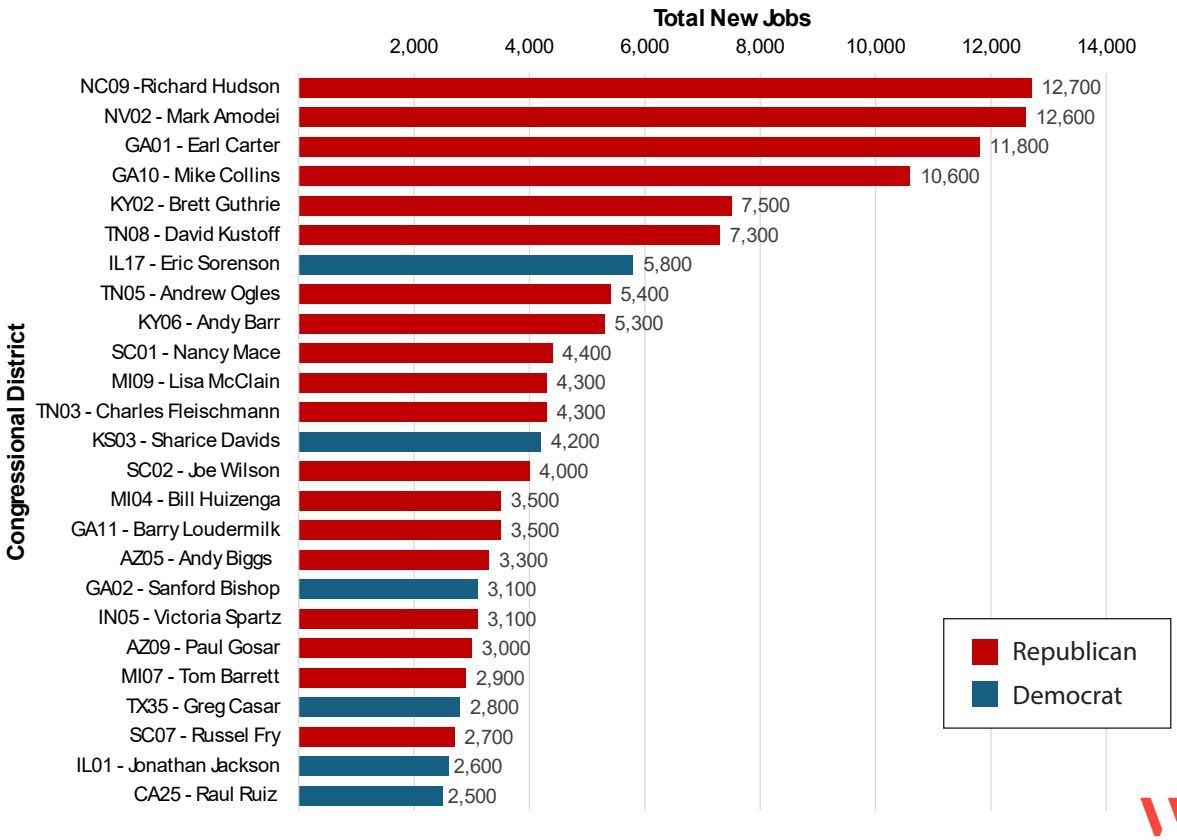
Congressional Districts with the Most EV and Battery Manufacturing Investments and Jobs



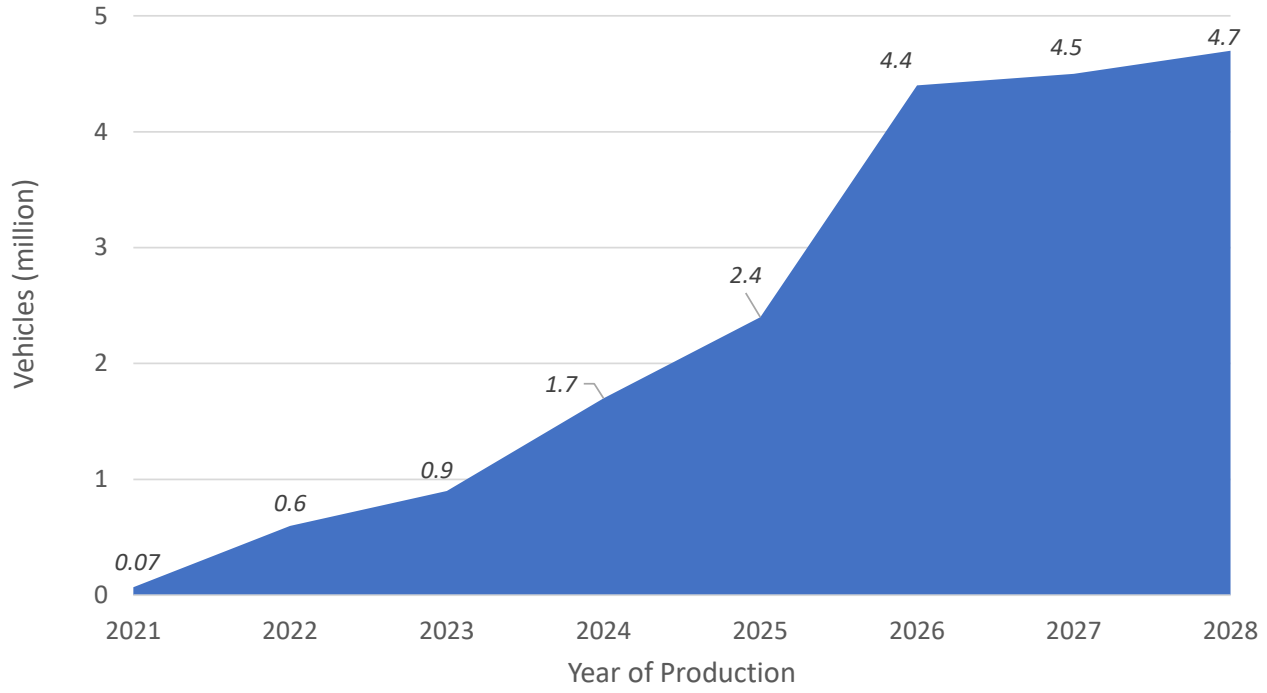
- More than 70% of the announced investments are concentrated in 25 Congressional Districts with Republicans representing 22 of those districts.
- Twenty five Congressional Districts account for two-thirds of the announced new jobs.
- Over 80% of the investment and 77% of the new jobs are in districts represented in Congress by a Republican.
- Officials have said many of the EV and battery manufacturing facilities represent the largest single investment ever made in the district or state[1]



[1]*Examples include Hyundai in GA01, BMW in SC04, Ford BlueOval in TN08, Ford and SK Innovation in KY02, Redwood Materials in SC01, and Amplify Cell Technologies in MS01.*

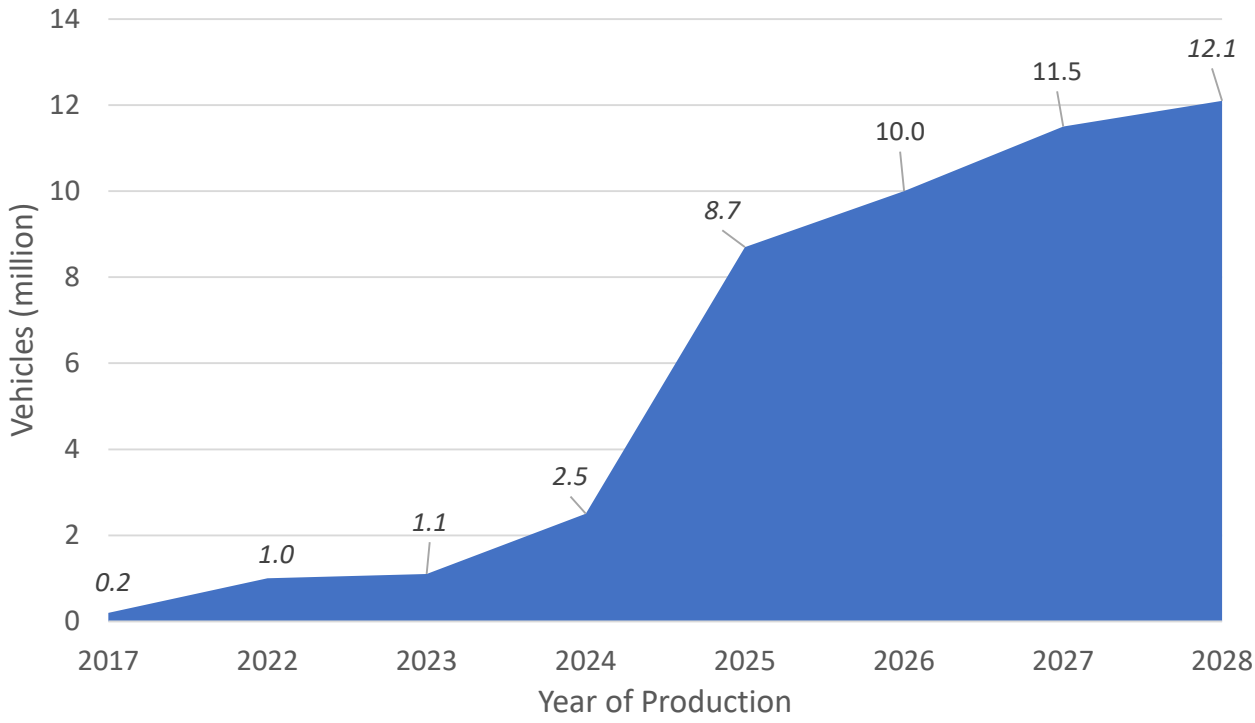
Total EV Manufacturing Capacity

U.S. EV manufacturing facilities will be capable of producing approximately 4.7 million new light-, medium-, and heavy-duty electric vehicles each year in 2028, which represents approximately 32 percent of all vehicles sold in the U.S. in 2023.



Battery Manufacturing Capacity

By 2028, U.S. battery manufacturing facilities will be capable of producing 1,083 GWh of EV battery capacity, enough capacity to power 12.1 million passenger vehicles, 76 percent of the vehicles sold in the U.S. in 2023.



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Methodology

This report summarizes private investments made or announced within the past 10 years in the U.S. electric vehicle (EV) ecosphere. This includes investments in the manufacturing of EVs, EV batteries, and EV battery components. The research builds from previous work contained in the Environmental Defense Fund's (EDF's) August 2022 document, Electric Vehicle Market Update: Manufacturer Commitments & Public Policy Initiatives Supporting Electric Mobility in the U.S. & Worldwide. The research also builds off of the first four iterations of this report, which were issued in March 2023, August 2023, March 2024, and August 2024.

The underlying data was collected through a review and compilation of U.S. investment announcements conducted by WSP in 2023 and 2024, as well as a review of clean energy investment lists other organizations have produced such as the Blue Green Alliance, the Department of Energy, and Environmental Entrepreneurs. The research team reviewed announcements released by investors, state and local governments, industry publications and local media, to capture the following data for each project:

- Company name and nationality
- Investment type (EV assembly plant – passenger cars and medium/heavy-duty vehicles, Battery manufacturing plant, Battery component plant, Battery recycling plant), EV component plan and EV motorcycle manufacturing plant
- Location (City, State)
- Announced investment value ($ billions)
- Facility production capacity (vehicles/year, Gigawatt-hours/year, tons/year)
- Announced facility employment (number of jobs when facility is at full production)
- Announcement date
- Schedule (construction begins, production begins)
- Local Incentives value ($ billions) and description
- Federal Incentives value ($ billions) and description
- Project status
- Congressional District
- Affiliation of incoming Representative

The research team identified a total of 229 individual investment announcements at approximately 208 project sites. Nineteen of these investment announcements have been added since the release of the August 2024 iteration of this report. Of these, five included investments in manufacturing for batteries used for mobility, storage applications, and consumer electronics. For these projects, the research team assumed that half of the investment value and half of the employment would be used for EV batteries, so total employment and investment for these projects was divided by two. For 25 of the projects included in the August 2024 version of this report, changes have since been announced to timelines for construction or operation, and/or announced changes (plus and minus) to investment value, capacity, or employment. This update captures these announced changes to the 25 prior projects.

The data set only includes projects with announced investment levels or jobs announced and known construction start or completion dates. If an investment was announced, but no corroborating information could be found that the project is moving forward, it was excluded from the data set. In all, the research identified 36 projects announced prior to the passage of the BIL on November 6, 2021; 27 projects announced after passage of the BIL and before adoption of the IRA, and 166 projects announced since the enactment of the IRA.

For announcements involving the retooling of existing vehicle assembly plants to support the production of EVs, the number of employees reflects new jobs but not retained jobs at the facilities. If there is a specific number of existing jobs that will support EV production, those are included. However, the majority of investment announcements does not include specific information on retained jobs. In addition to direct employment figures, this iteration of the U.S. EV Manufacturing Investments and Jobs analysis also includes estimates of indirect and induced employment. Indirect jobs are generated to produce the goods and services needed by workers with direct jobs. Induced jobs involve employment created by the additional personal spending of both*

direct and indirect workers. We have applied the following multipliers to direct employment figures to calculate induced and indirect employment:

- EV manufacturing: +7 jobs for each direct job (Climate Nexus Job Impacts from the Shift to Electric Cars and Trucks)
- EV batteries, battery components, EV component: + 2.5 jobs for each direct job (Nevada Governor's Office of Economic Development; Economic Impact of Tesla Gigafactory on Washoe and Storey Counties)

Using these multipliers, indicates that the announced direct investments in the EV vehicle and battery manufacturing ecosphere could generate as many as 826,000 new induced and indirect jobs.

Not all parameters of interest were necessarily available for all projects in the dataset. The research team developed average values announced for each investment type for: investment level, employment, capacity, and construction time. In cases where certain parameters were unknown for a given project, the research team used the average values to calculate the missing information. Similarly, for projects for which production start date is unknown, the project team estimated a production start date based on the construction start date and the average construction duration for similar projects for which both construction start and production start dates are known. The total values for cumulative production and jobs by year shown in this report include these estimates. Of the $197.6 billion in total investment, 99% are announced investment levels, the remaining 1% has been calculated. Of the cumulative 194,600 EV ecosystem jobs announced between 2015 and November 30, 2024, 93% are announced jobs, with the remainder estimated jobs. Of the 5.1 million in annual EV manufacturing capacity expected online in 2030 (both passenger and medium/heavy-duty vehicles), 71% is announced capacity and the remainder is estimated capacity. Of the 13.3 million in annual EV battery manufacturing capacity expected online in 2028, 85% is announced capacity and the remainder is estimated capacity.

It should be noted that the battery manufacturing capacity is reported in terms of the approximate number of light duty vehicles that the batteries could power, for consistency. Battery manufacturing capacity values were available in gigawatt-hours for most of the projects, which were converted into vehicles using a factor of 89 kWh per EV battery for a light-duty vehicle. This is the average of the values used by the U.S. Department of Energy Office of Energy Efficiency, Vehicle Technologies Office (77 – 100 kWh/EV) to estimate 2030 North American EV battery production capacity in Fact of the Week #1271, published January 2, 2023. This figure is larger than the current size of most EV batteries, so the resulting battery production figures can be considered conservative. Given the variety of measures used to quantify the production of battery component plants, this information was noted, but not included in the quantitative analysis.