

50

STATES OF ELECTRIC VEHICLES

2023 Annual Review & Q4 2023 Report
Executive Summary



AUTHORS

Emily Apadula
Rebekah de la Mora
Justin Lindemann
Brian Lips
Vincent Potter
Autumn Proudlove
David Sarkisian

The [NC Clean Energy Technology Center](#) is a UNC System-chartered Public Service Center administered by the College of Engineering at North Carolina State University. Its mission is to advance a sustainable energy economy by educating, demonstrating and providing support for clean energy technologies, practices, and policies. The Center provides service to the businesses and citizens of North Carolina and beyond relating to the development and adoption of clean energy technologies. Through its programs and activities, the Center envisions and seeks to promote the development and use of clean energy in ways that stimulate a sustainable economy while reducing dependence on foreign sources of energy and mitigating the environmental impacts of fossil fuel use.

CONTACT

Autumn Proudlove (afproudl@ncsu.edu)

PREFERRED CITATION

North Carolina Clean Energy Technology Center, *The 50 States of Electric Vehicles: 2023 Review and Q4 2023 Report*, February 2024.

COVER DESIGN CREDIT

Cover design by Amira Ferjani and Justin Lindemann

COVER PHOTO CREDIT

Photo by Noya Fields. “Plug In Electric Vehicle.” October 25, 2013. CC BY-SA 2.0. Retrieved from <https://www.flickr.com/photos/noyafieldsorg/34851733984/>

Photo by U.S. Department of Energy. “The new Nissan Leaf...” January 31, 2013. U.S. Government Works. Retrieved from <https://www.flickr.com/photos/departmentofenergy/8432748677/in/photostream/>

DISCLAIMER

While the authors strive to provide the best information possible, neither the NC Clean Energy Technology Center nor NC State University make any representations or warranties, either express or implied, concerning the accuracy, completeness, reliability or suitability of the information. The NC Clean Energy Technology Center and NC State University disclaim all liability of any kind arising out of use or misuse of the information contained or referenced within this report. Readers are invited to contact the authors with proposed corrections or additions.

PREVIOUS EDITIONS AND OTHER 50 STATES REPORTS

The full version of this report may be purchased [here](#). Previous executive summaries of *The 50 States of Electric Vehicles* are available for download [here](#).

In addition to *The 50 States of Grid Modernization*, the NC Clean Energy Technology Center publishes additional quarterly reports called *The 50 States of Solar*, *The 50 States of Grid Modernization*, and *The 50 States of Power Decarbonization*. These reports may be purchased [here](#). Executive summaries and older editions of these reports are available for download [here](#).

ABOUT THE REPORT

PURPOSE

The purpose of this report is to provide state and local lawmakers and regulators, electric utilities, the electric power industry, the transportation industry, and other energy stakeholders with timely, accurate, and unbiased updates about how states are choosing to study, adopt, implement, amend, or discontinue policies associated with electric vehicles. This report catalogues proposed and approved legislative, regulatory, and utility rate design changes affecting electric vehicles during the most recent quarter, as well as state and investor-owned utility proposals to deploy electric vehicles and charging infrastructure.

APPROACH

The authors identified relevant policy changes and deployment proposals through state utility commission docket searches, legislative bill searches, popular press, and direct communications with stakeholders and regulators in the industry.

Questions Addressed

This report addresses several questions about the U.S. electric vehicle landscape, including:

- How are states addressing barriers to electric vehicle and charging infrastructure deployment?
- What policy actions are states taking to support markets for electric vehicles and related infrastructure?
- How are utility companies designing rates and electric vehicle supply equipment companies designing charging equipment and controls to influence charging behavior of electric vehicle owners?
- Where and how are states and utilities proposing to deploy or pay for electric vehicles and electric vehicle charging infrastructure?

Actions Included

This report focuses on cataloguing and describing important proposed and adopted policy changes related to electric vehicles. For the purpose of this report, the definition of electric vehicle includes all-electric vehicles (EVs), hybrid electric vehicles (HEVs), and plug-in electric vehicles (PHEVs). In order to explore all policy actions related to electric vehicles, this report catalogs and describes actions related to the deployment of electric vehicle charging equipment, which is often referred to as electric vehicle supply equipment (EVSE). Additionally, the electric grid is impacted

by electric vehicle charging, so legislative and regulatory actions related to electric utilities are included in this report.

In general, this report considers an “action” to be a relevant (1) legislative bill that has been introduced, (2) executive order, or (3) regulatory docket, utility rate case, or rulemaking proceeding. Only statewide actions and those related to investor-owned utilities are included in this report. Specifically, actions tracked in this issue include:

Studies and Investigations

Legislative or regulatory-led efforts to study electric vehicles specifically, or electric vehicles as part of a broader grid modernization study or investigation.

Regulation

Changes to state rules related to electric vehicles, including registration fees, homeowner association limitations, and electricity resale regulations affecting vehicle charging.

Utility Rate Design

Proposed or approved changes to investor-owned utility rate design for electric vehicles, including new electric vehicle tariffs and significant changes to existing electric vehicle tariffs.

Market Development

New state policy proposals or changes to existing policies aimed at growing the electric vehicle market.

Financial Incentives

New state or investor-owned utility incentive programs or changes to existing incentive programs for electric vehicles and charging infrastructure.

State and Utility Deployment

Utility-initiated requests, as well as proposed legislation, to deploy electric vehicles or charging infrastructure.

Actions Excluded

While actions taken by municipal utilities and electric cooperatives are not comprehensively tracked in this report, particularly noteworthy or high-impact actions are included. The report also excludes actions related to grid modernization without an explicit electric vehicle component, as well as actions related to general time-varying rates not specific to vehicle charging; these types of actions are tracked in the 50 States of Grid Modernization report series.

EXECUTIVE SUMMARY

2023 ELECTRIC VEHICLE ACTION

In 2023, 49 states plus DC and Puerto Rico took a total of 804 policy and deployment actions related to electric vehicles and charging infrastructure. Table 1 provides a summary of state and utility actions on these topics. Of the 804 actions identified, the most common were related to regulation (218), followed by financial incentives (209) and market development (191). All 50 states, plus DC and Puerto Rico also took actions planning for National Electric Vehicle Infrastructure (NEVI) program funding distribution.

Table 1. 2023 Summary of Electric Vehicle Actions

Type of Action	# of Actions	% by Type	# of States
Regulation	218	27%	47 + DC, PR
Financial Incentives	209	26%	41 + DC, PR
Market Development	191	24%	32 + DC, PR
Rate Design	80	10%	35 + PR
Studies and Investigations	66	8%	33 + PR
Deployment	40	5%	28 + DC
Total	804	100%	49 States + DC, PR

Note: The “# of States/ Districts” total is not the sum of the rows because some states have multiple actions. Percentages are rounded and may not add up to 100%.

TOP TEN MOST ACTIVE STATES OF 2023

Ten states taking the greatest number of actions related to electric vehicles, or some of the most impactful actions, are noted below.

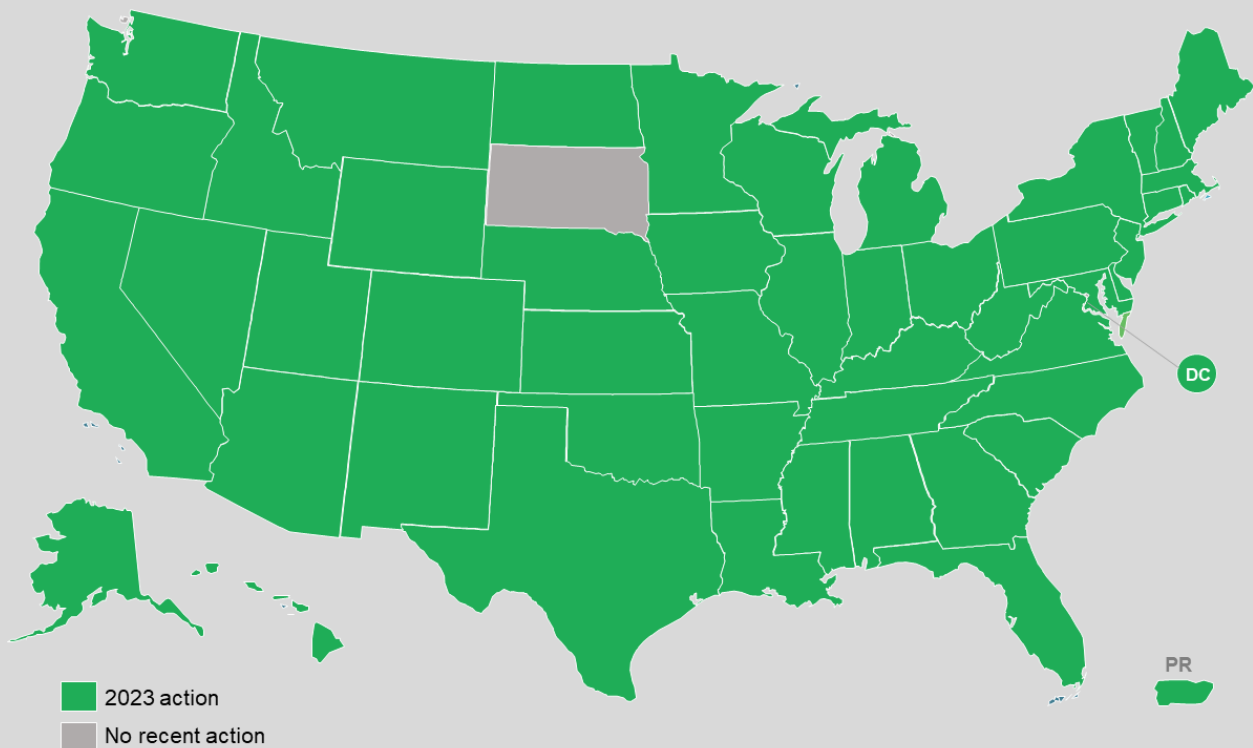
Colorado

Black Hills Energy and Xcel Energy filed transportation electrification plans in 2023, including a variety of incentive programs to support electric vehicles and charging infrastructure, as well as managed charging programs. State lawmakers enacted multiple bills during the year, extending and creating electric vehicle tax credits and expanding access to charging infrastructure at multifamily buildings. The Colorado Air Quality Control Commission also adopted zero-emission truck rules.

California

The California Public Utilities Commission opened a new expansive proceeding on transportation electrification during 2023, worked to implement a clean miles standard, and approved a vehicle-to-grid export rate for San Diego Gas & Electric. An electrification impacts study was released, and lawmakers enacted legislation on resilience of medium- and heavy-duty zero-emission utility vehicles, electrification infrastructure upgrades, and more.

Figure 1. 2023 Legislative and Regulatory Action on Electric Vehicles



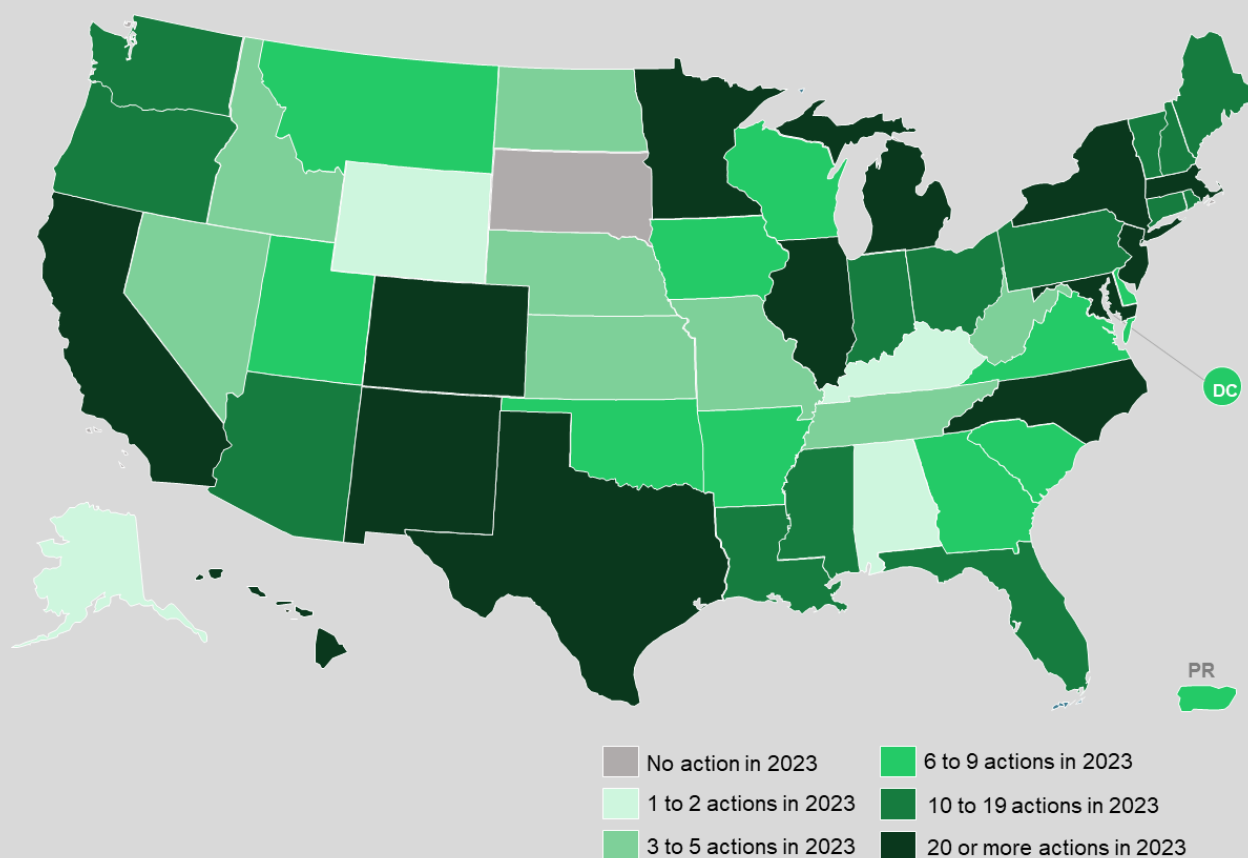
Maryland

In Maryland, state lawmakers enacted legislation establishing requirements for make-ready infrastructure or charging stations at newly constructed or significantly renovated housing units. Legislators also enacted bills extending a charger rebate program and creating a new grant program for medium- and heavy-duty electric vehicles. The state also took steps to adopt the Advanced Clean Cars II and Advanced Clean Trucks rules, and Baltimore Gas & Electric proposed a new electric school bus pilot program.

Minnesota

Minnesota lawmakers enacted legislation in 2023 establishing a new electric vehicle rebate program, a grant program for electrical panel upgrades, a grant program for electric school buses, and a grant program for vehicle dealers to train employees in electric vehicles and purchase equipment for electric vehicle maintenance and repair. The legislation also directs utilities to file transportation electrification plans and requires state fleet purchases to prioritize electric and hybrid vehicles.

Figure 2. 2023 Electric Vehicle Activity, by Number of Actions



Michigan

Consumers Energy, DTE Electric, and Indiana Michigan Power requested approval to continue their electric vehicle programs, while the state's governor proposed a new rebate program for electric and hybrid vehicles. The governor also signed an executive order requiring the state's vehicle fleet to be converted to zero-emission vehicles. The Public Service Commission planned a technical conference on electric vehicle issues as well.

Illinois

Illinois legislators enacted bills requiring government fleet vehicles to be zero-emission by 2030, requiring newly constructed single-family and small multifamily buildings to have a certain amount of electric vehicle-capable parking, and disallowing covenants and restrictions that prohibit residents from installing charging stations. Regulators approved a variety of electric vehicle and charging station incentive programs as part of Commonwealth Edison's and Ameren Illinois' beneficial electrification plans.

North Carolina

The North Carolina Utilities Commission approved a proposed charging-as-a-service program for Duke Energy Carolinas and Duke Energy Progress, as well as a beneficial electrification tracking metric for future performance incentive mechanism development. The Commission also approved Duke Energy Carolinas' residential vehicle-to-grid pilot program (although this program will now be delayed), while the state's Department of Transportation released its final Clean Transportation Plan.

New Mexico

El Paso Electric and PNM filed their transportation electrification plans in 2023, including a variety of new incentive programs for charging stations and make-ready equipment, managed charging programs, rate structures, and pilot programs. The state's governor also signed an executive order requiring all state agencies to acquire zero-emission vehicles for all new vehicles.

Hawaii

Hawaii lawmakers enacted legislation establishing a goal to achieve zero emissions across all transportation modes within the state. The bill also creates clean transportation working groups focused on ground transportation and interisland transportation. The state legislature also approved a new mileage-based road usage fee for electric vehicles, while the Hawaii Public Utilities Commission approved an electric vehicle telematics pilot proposed by HECO.

Rhode Island

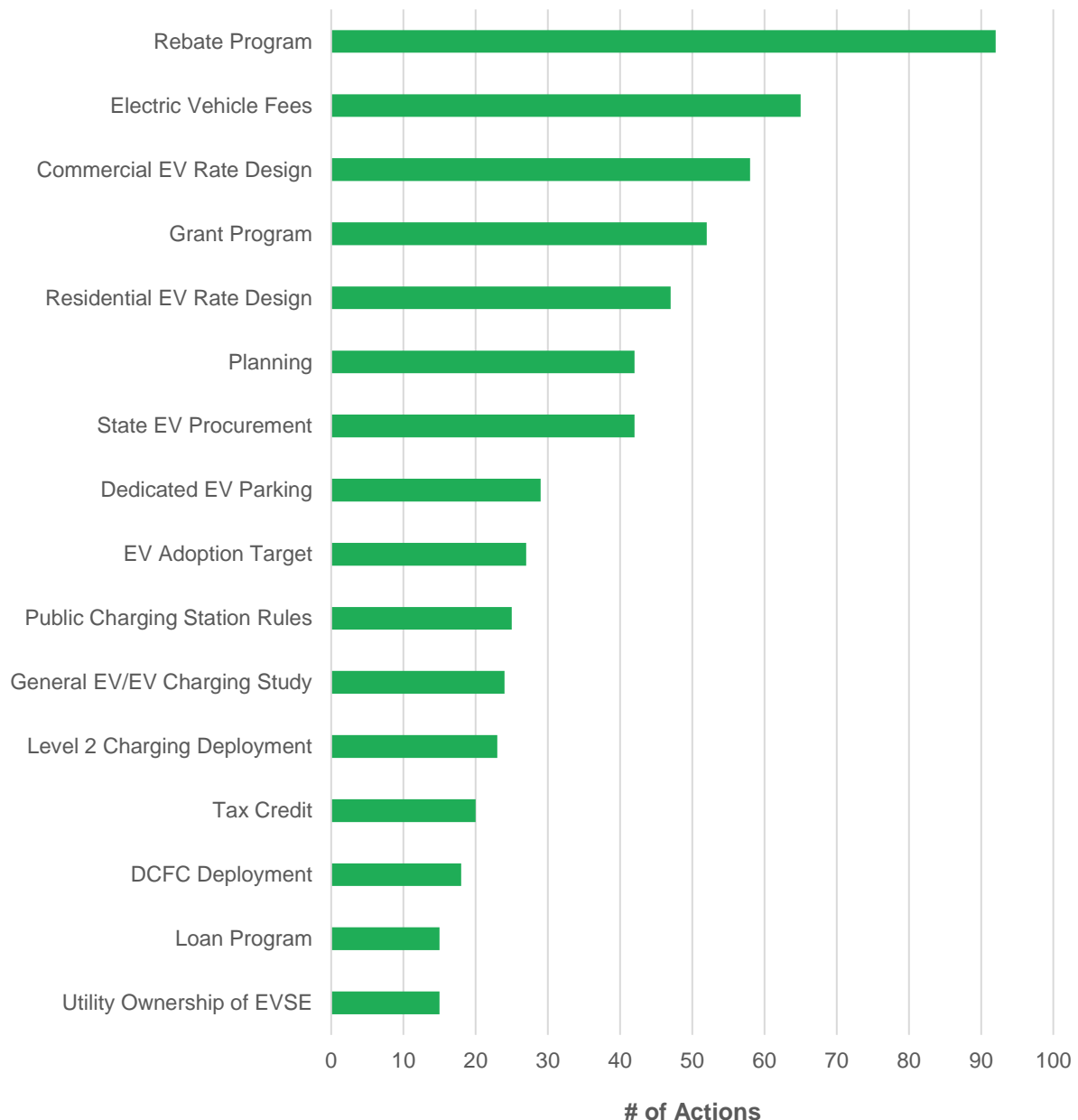
Rhode Island's Department of Environmental Management began a rulemaking to adopt Advanced Clean Cars II and Advanced Clean Truck standards. Meanwhile, state lawmakers approved resolutions supporting Rhode Island Energy's effort to propose a new off-peak charging rebate and advancing efforts to require state agencies to transition their fleets to electric vehicles.

TOP ELECTRIC VEHICLE TRENDS OF 2023

Considering Utility Ownership of Charging Infrastructure

States across the country considered whether utilities should be permitted to own electric vehicle charging stations during 2023. Regulators in Louisiana, North Carolina, and Texas all addressed this issue, and Oklahoma lawmakers enacted legislation allowing retail electric suppliers to only own public charging stations through a separate unregulated entity. State legislatures in Georgia and Texas also addressed utility ownership of charging stations.

Figure 3. Top Electric Vehicle Actions of 2023



Establishing Electric Vehicle-Capable Parking Requirements

Lawmakers in several states enacted legislation establishing requirements for parking spaces to be ready for or equipped with electric vehicle charging stations. Delaware legislators adopted requirements for electric vehicle-capable parking at new single-family homes and multifamily dwellings, while state legislatures in Illinois, Maryland, and Minnesota also adopted new requirements for electric-vehicle capable parking.

Figure 4. Number of Electric Vehicle Actions 2017-2023

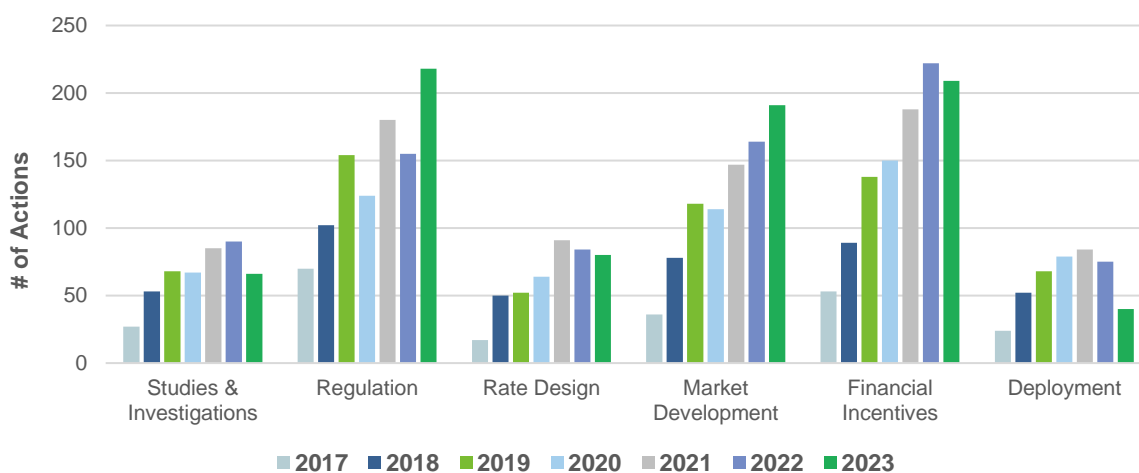
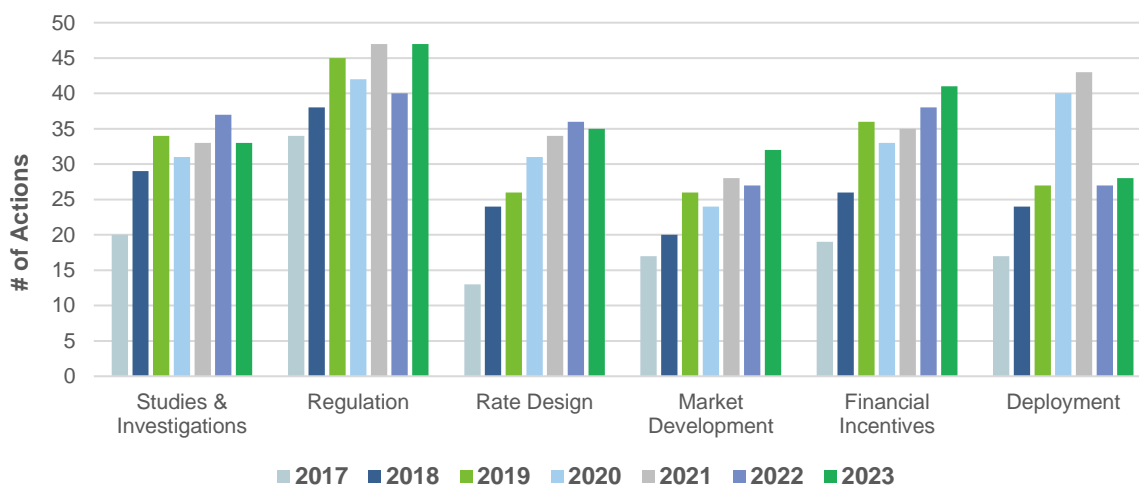


Figure 5. Number of States Taking Electric Vehicle Actions 2017-2023



Implementing Mileage-Based or Per-KWh Charging Fees

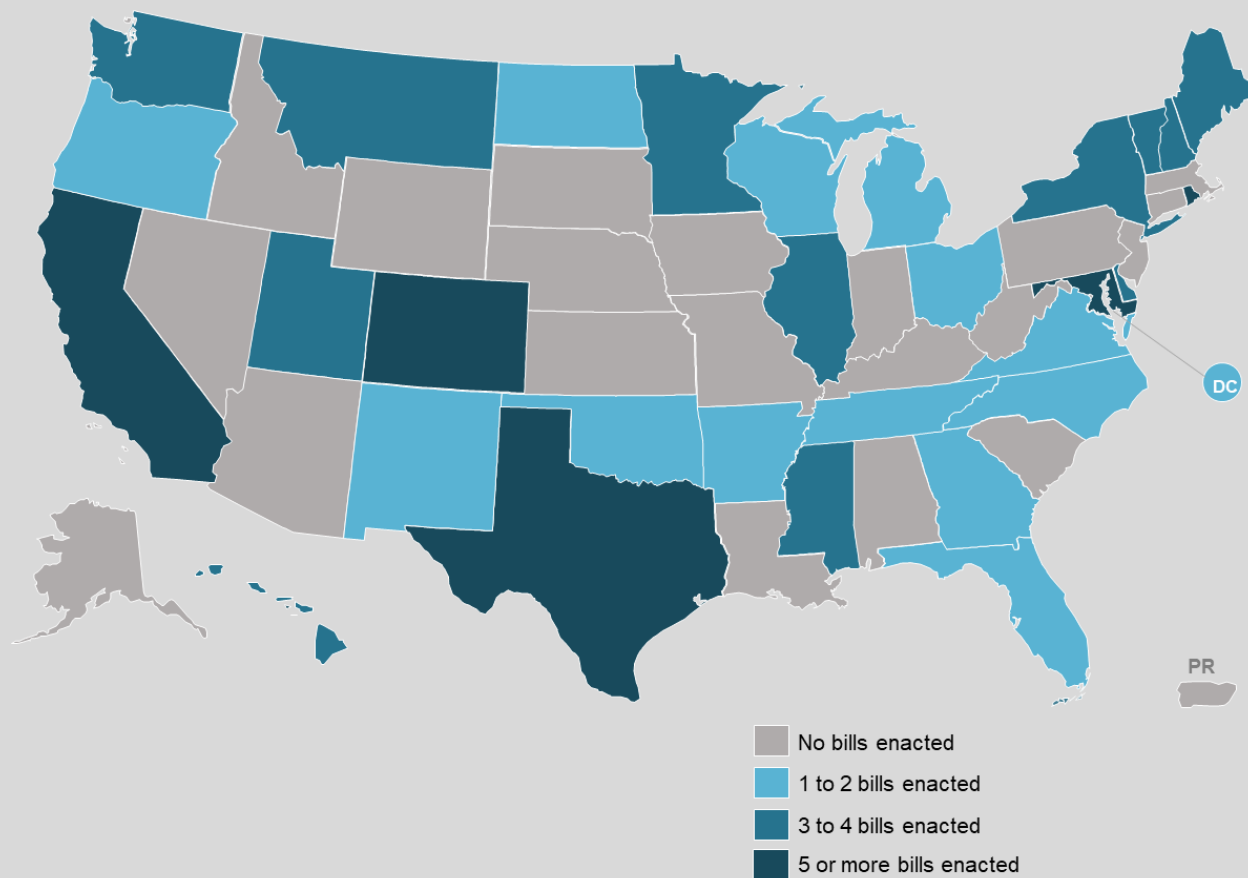
A number of states adopted new fees for electric vehicles based on miles traveled or electricity used for vehicle charging. Lawmakers in Georgia and Montana enacted legislation adopting new per-kWh charging fees, while Hawaii legislators adopted a mileage-based road usage fee.

Vermont lawmakers passed legislation expressing intent to implement a mileage-based fee for electric vehicles and work toward collecting a per-kWh charging fee.

Incorporating Managed Charging Into Demand-Side Management Plans

Utilities are increasingly incorporating managed charging programs into their broader demand-side management portfolios. Kentucky regulators approved Louisville Gas & Electric's and Kentucky Utilities' demand-side management plan that includes a new optimized charging program, while Arizona Public Service filed a new demand-side management plan including managed charging incentives.

Figure 6. Electric Vehicle Legislation Enacted in 2023



Adopting Advanced Clean Cars II and Advanced Clean Trucks Rules

Several states, including Colorado, Delaware, Maine, Maryland, New York, and Rhode Island, took steps to adopt the California Air Resource Board's Advanced Clean Cars II or Advanced Clean Trucks rules during 2023. The Advanced Clean Cars II rules require an increasing

percentage of passenger cars and light-duty trucks sold in the state to be zero-emission vehicles, while the Advanced Clean Trucks rules involve similar requirements for zero-emission trucks.

Offering Enhanced Incentives for Low- and Moderate-Income Households

A common trend across state and utility incentive programs for electric vehicles and charging infrastructure has been offering higher incentives for income-qualified households. For example, legislation enacted in Minnesota creates a new electric vehicle program with additional incentives for income-qualified customers, while PNM's transportation electrification plan would offer low-income customers in New Mexico higher incentive levels for electric vehicle charging stations.

Taking Steps to Improve Charging Station Reliability

Reliability issues have plagued electric vehicle charging stations in many locations, with policymakers now taking steps to improve this. The California Energy Commission proposed regulations for reporting on charger reliability, while Washington lawmakers enacted legislation designating charging stations as commercial metal property to discourage theft and vandalism. A number of incentive programs are also requiring recipients to meet certain charging station uptime requirements.

Using Telematics to Collect Vehicle Charging Data

A growing number of utilities are pursuing programs that utilize vehicle telematics, as opposed to smart or networked charging stations, to collect electric vehicle charging data. This can allow a driver's full charging behavior to be analyzed, rather than their use of a particular station. Hawaii regulators approved HECO's telematics pilot program, while Virginia regulators approved Dominion Energy's residential telematics program.

Pursuing Vehicle-to-Grid Opportunities with Electric Buses

States and utilities are showing interest in vehicle-to-grid capabilities, with the majority of current activities focusing on opportunities for bidirectional electric buses. Michigan regulators approved DTE Electric's new program in Michigan that will provide schools with electric bus chargers with vehicle-to-grid capabilities. Meanwhile, Baltimore Gas & Electric proposed an electric school bus pilot that would fully cover charging station costs if it is capable of bidirectional power flow.

Focusing on Incentives to Support Deployment of Charging Infrastructure

Financial incentives continued to be a major area of focus for states and utilities in 2023, with utilities tending to focus their efforts on providing incentives for charging infrastructure, as opposed to directly deploying and owning the infrastructure. This year saw a significant dip in

utility deployment proposals, while many utilities filed proposals to offer new charging station incentives or to extend the availability of existing incentives.

Figure 7. Most Active States of 2023, by Number of Actions

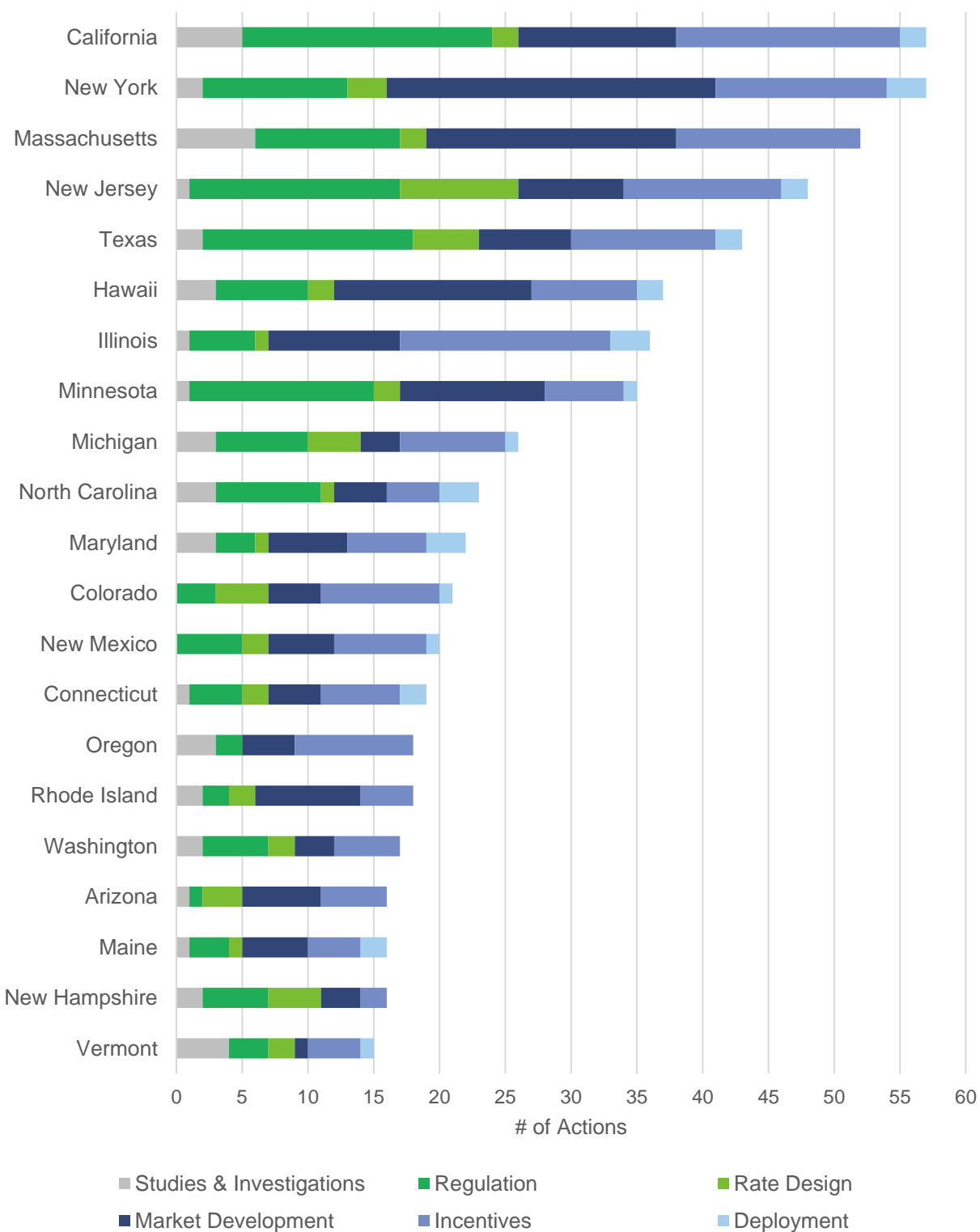
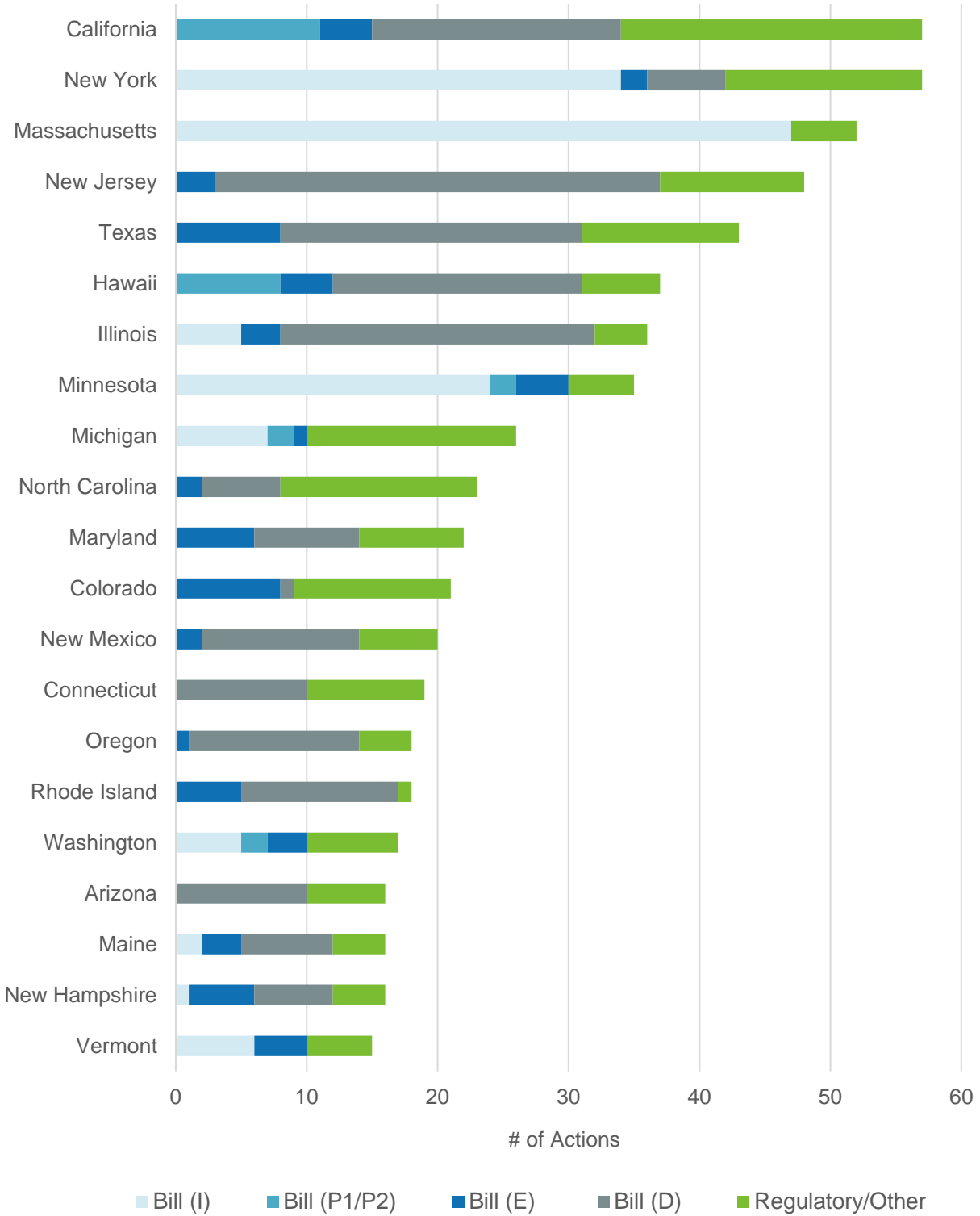


Figure 8. Most Active States of 2023, by Action Status



Q4 2023 ELECTRIC VEHICLE ACTION

In Q4 2023, 41 states plus DC and Puerto Rico took a total of 411 actions related to electric vehicles. Table 2 provides a summary of state and utility actions occurring during Q4 2023. Of the actions cataloged, the most common were related to regulation (107), followed by financial incentives (105), and market development (93). All 50 states, plus DC and Puerto Rico, took actions planning for National Electric Vehicle Infrastructure (NEVI) program funding distribution.

Table 2. Q4 2023 Summary of Electric Vehicle Actions

Type of Action	# of Actions	% by Type	# of States
Regulation	107	26%	24 + DC, PR
Financial Incentives	105	26%	29 + DC, PR
Market Development	93	23%	23 + DC, PR
Rate Design	49	12%	25 + PR
Studies and Investigations	37	9%	22
Deployment	20	5%	14 + DC
Total	411	100%	41 States + DC, PR

Note: The “# of States/ Districts” total is not the sum of the rows because some states have multiple actions. Percentages are rounded and may not add up to 100%.

TOP ELECTRIC VEHICLE ACTIONS OF Q4 2023

Five of the quarter’s most notable electric vehicle actions are noted below.

California Launches New Expansive Transportation Electrification Proceeding

The California Public Utilities Commission opened a new proceeding on transportation electrification in December 2023, which will continue the Commission’s efforts to develop infrastructure to support the acceleration of transportation electrification. Among the topics to be addressed are timely energization of charging stations, grid planning, deployment of behind-the-meter charging infrastructure, and vehicle-grid integration.

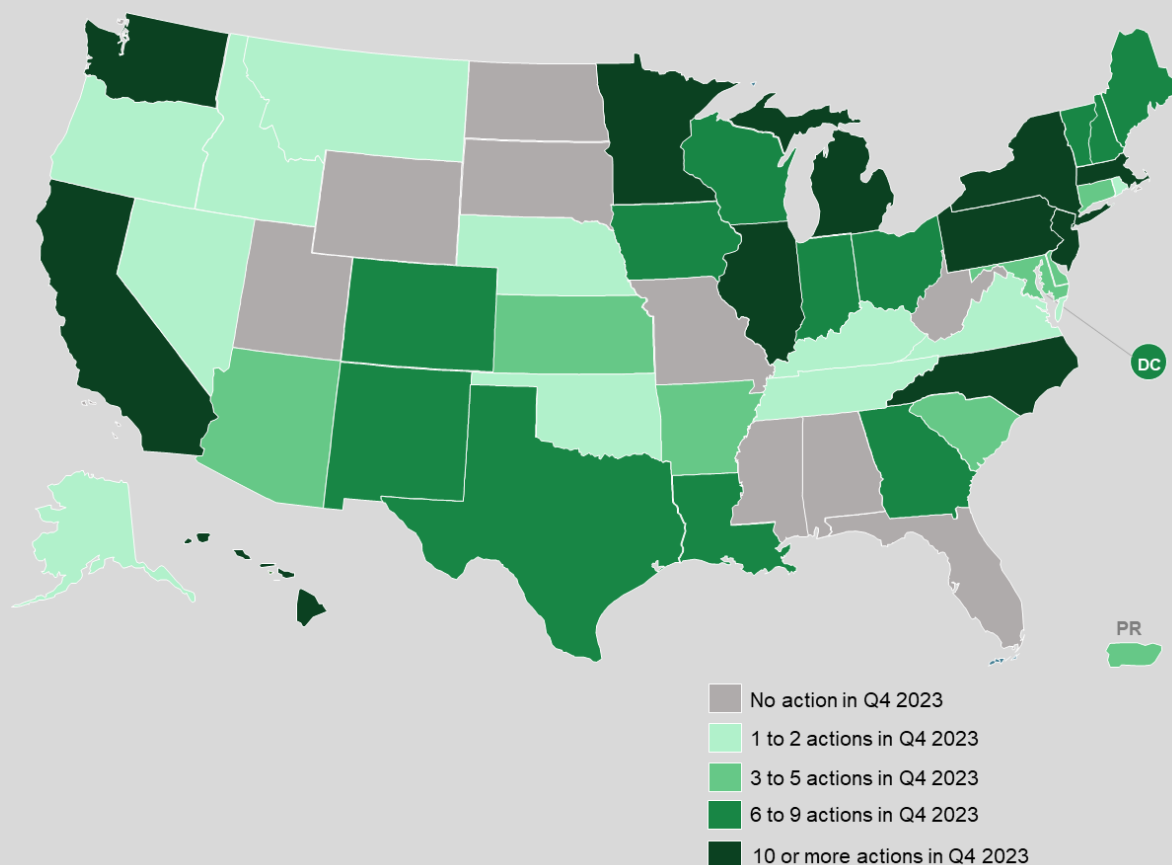
Michigan Governor Advances Electric Vehicle Initiatives

In December 2023, Michigan’s governor signed an executive directive requiring the state’s vehicle fleet to convert to zero-emission vehicles by 2033 for light-duty vehicles and 2040 for medium- and heavy-duty vehicles. The governor also proposed a rebate program for electric and hybrid vehicles, which would provide higher incentive levels for vehicles made in unionized factories.

Indiana and Michigan Regulators Approve Utility Electric Vehicle Portfolios

Regulators in Indiana approved AES Indiana’s portfolio of electric vehicle programs, while Michigan regulators approved DTE Electric’s Charging Forward electric vehicle programs. AES Indiana’s portfolio includes new rate structures, managed charging programs, rebates, and a bidirectional charging pilot. DTE portfolio’s includes transitioning several existing pilots to permanent programs and adding a new school bus chargers pilot.

Figure 9. Q4 2023 State and Utility Action on Electric Vehicles



New York Governor Announces Zero-Emission School Bus Incentive Program

In November 2023, New York’s governor announced a new \$100 million New York School Bus Incentive Program that will provide point-of-sale incentives to school bus fleet operators for zero-emission school buses and charging infrastructure. The funding is being made available through legislation enacted in 2022, which also requires that disadvantaged communities receive at least 35% of funding.

States Publish Transportation Carbon Reduction Strategies

Several states published their draft or final Carbon Reduction Strategies during Q4 2023, which are required to be prepared by state departments of transportation under the federal Infrastructure Investment and Jobs Act. The Carbon Reduction Strategies were due to the Federal Highway Administration in November 2023 and may include transportation electrification projects and strategies, among other approaches to reduce transportation sector carbon emissions.

Figure 10. Top Electric Vehicle Actions of Q4 2023

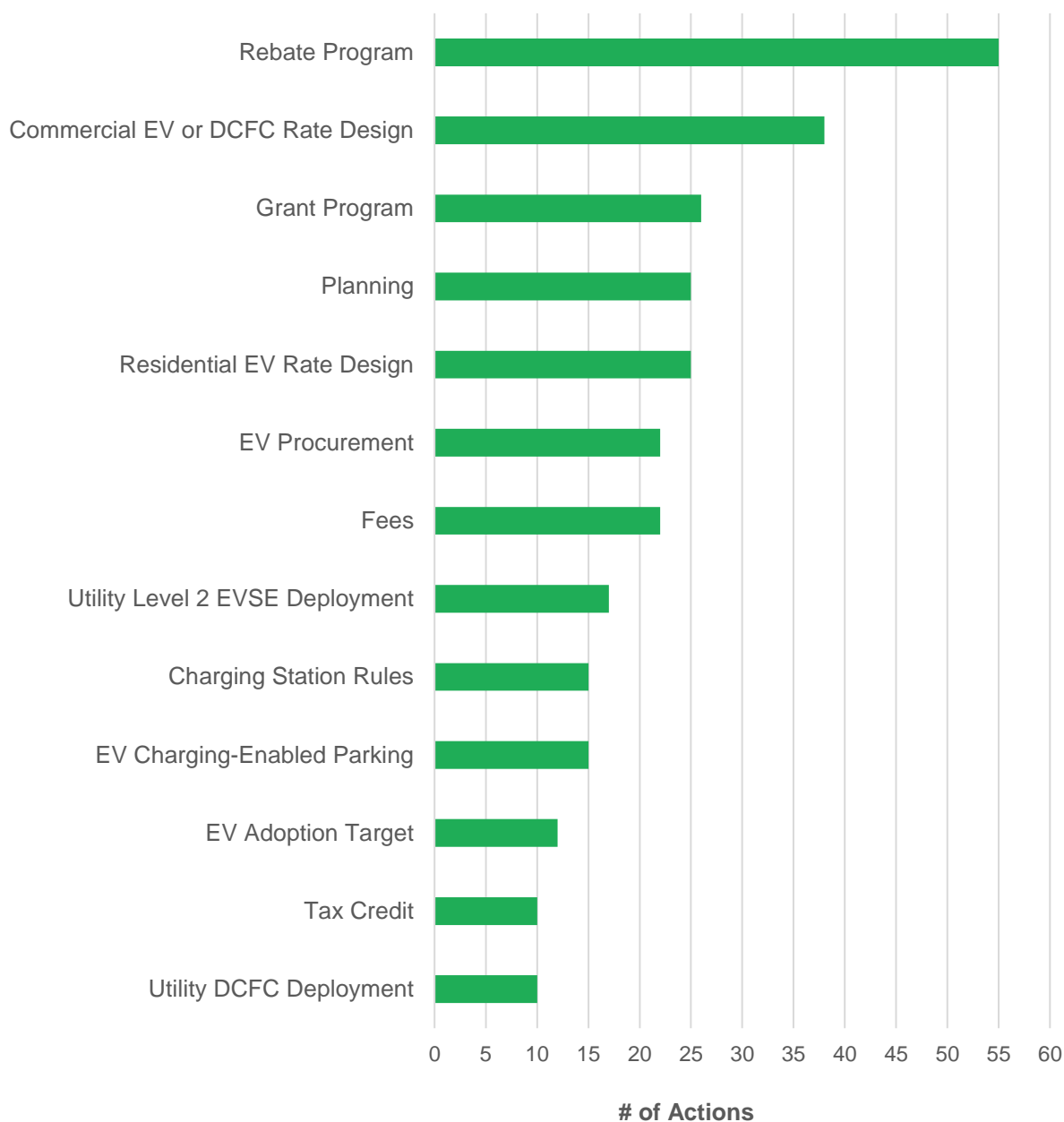


Figure 11. Electric Vehicle Action by Quarter, Q1 2018 to Q4 2023

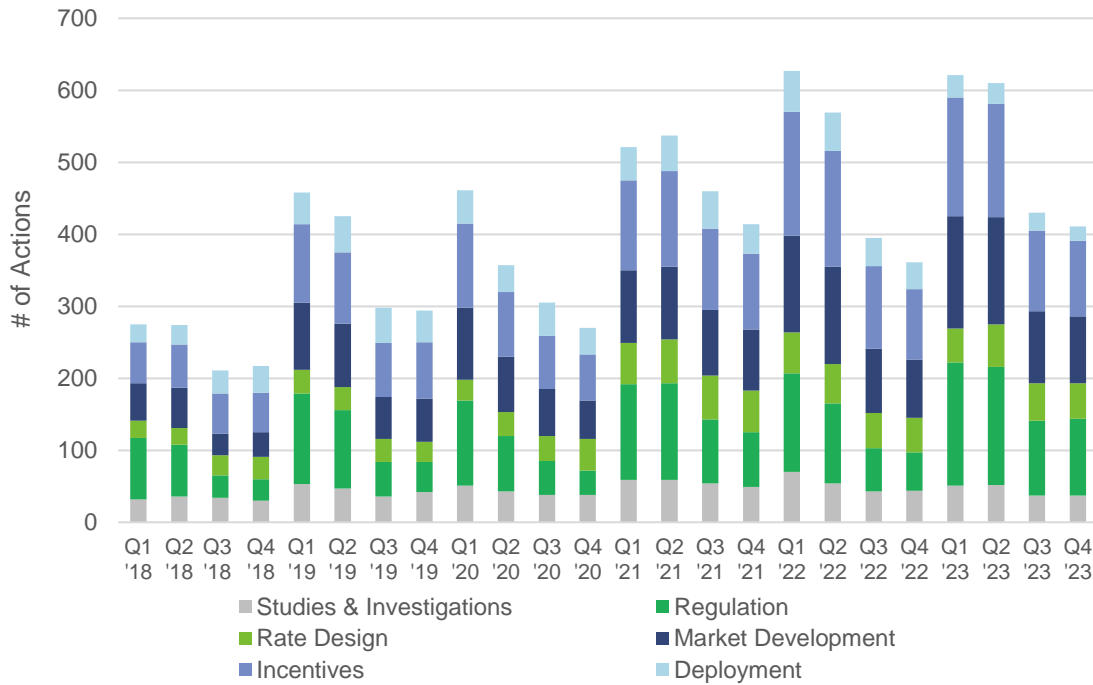
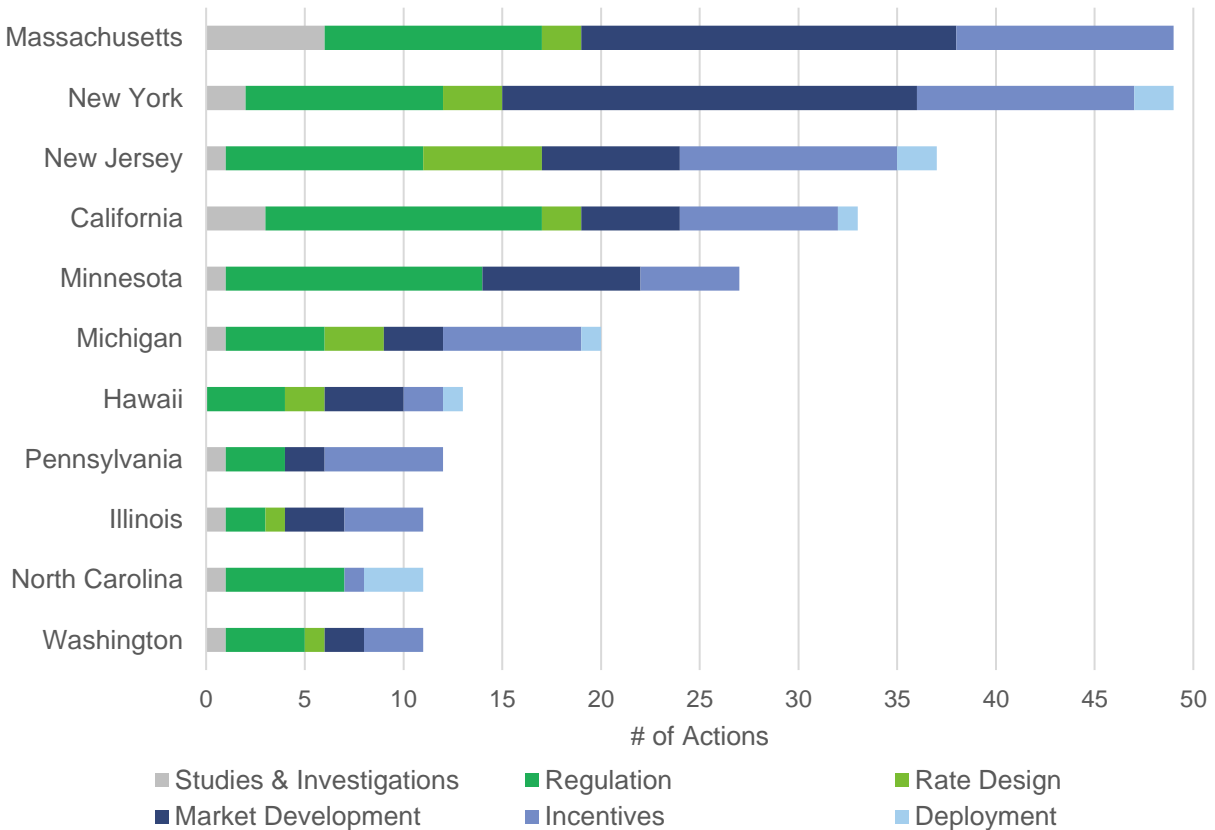


Figure 12. Most Active States of Q4 2023



FULL REPORT DETAILS & PRICING

FULL REPORT DETAILS

Content Included in the Full Quarterly Report:

- Detailed tables describing each pending and recently decided state and investor-owned utility action related to electric vehicles and charging infrastructure. Actions are broken out into the following categories:
 - Studies and Investigations
 - Regulation
 - Rate Design
 - Market Development
 - Financial Incentives
 - State and Utility Deployment
- Links to original legislation, dockets, and commission orders for each legislative and regulatory action
- Excel spreadsheet file of all actions taken during the quarter and separate Powerpoint file of all summary maps available upon request
- Qualitative analysis and descriptive summaries of electric vehicle policy action and trends
- Outlook of action for the next quarter

WHO SHOULD PURCHASE THIS REPORT

The 50 States of Electric Vehicles allows those involved in the electric and transportation industries to easily stay on top of legislative and regulatory changes. The report provides a comprehensive quarterly review of actions. At a cost of \$500 per issue (or \$1,500 annually), the 50 States of Electric Vehicles offers a significant time and financial savings. With direct links to original sources for all actions, customers may stay on top of legislative and regulatory developments between quarterly reports.

Electric Vehicle and Charging Infrastructure Companies

- Identify new market opportunities, as well as changing and risky markets
- Stay on top of state policy developments relevant to your business
- Give your own team a head start in tracking legislative and regulatory proceedings

Electric Utilities

- Learn about the approaches being taken by other utilities facing similar opportunities and challenges
- Stay on top of relevant state policy developments

- Utilize an objective source of information in legislative and regulatory proceedings

Investors and Financial Analysts

- Identify new investment opportunities and emerging areas of growth, as well as risky investments
- Identify active utility investment proceedings

Advocacy Organizations

- Learn about the electric vehicle actions under consideration across the country
- Learn about the outcomes of other states' policy discussions
- Utilize an objective source of information in legislative and regulatory proceedings

Researchers and Consultants

- Access valuable data requiring a vast amount of time to collect first-hand
- Identify research needs to inform electric vehicle proceedings
- Cite an objective source in your own research and analysis

PRICING

Visit <https://www.dsireinsight.com/subscriptions/> to purchase the full 50 States of Electric Vehicles 2023 Review and Q4 2023 Report or learn more about our additional subscription offerings.

Subscription Type	Annual Subscription	Single Report
50 States of Electric Vehicles Report	\$1,500	\$500
Single-Tech Subscription (Electric Vehicles) <i>(Includes 50 States of Electric Vehicles report, plus biweekly legislative & regulatory electric vehicle tracking, policy data sheets, & curated monthly email policy updates)</i>	\$4,500	N/A
All-Tech Subscription <i>(Includes 50 States of Electric Vehicles report, 50 States of Solar report, & 50 States of Grid Modernization report; plus biweekly legislative & regulatory tracking; policy data sheets, & monthly email policy updates for solar, grid modernization/energy storage, & electric vehicles)</i>	\$10,500	N/A

NON-PROFIT / GOVERNMENT DISCOUNT

A 20% discount is now available for non-profits and government entities. Please [contact us](#) for more information.

COMPLIMENTARY COPIES FOR POLICYMAKERS

We offer complimentary copies of the 50 States of Electric Vehicles, as well as the 50 States of Grid Modernization and the 50 States of Solar, to **policymakers and regulators** (limited to federal and state legislators and staffers, utility commissioners, utility commission staff, state consumer advocate office staff, and state energy office staff). [Contact us](#) to receive a complimentary copy of the most recent report.

CUSTOMIZED SOLUTIONS

The NC Clean Energy Technology Center also offers customized policy research and analysis services. Visit <http://www.dsireusa.org/services/> to learn more.