

50 STATES OF ELECTRIC VEHICLES

Q4 2019 Quarterly Report
& 2019 Annual Review
Executive Summary



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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.

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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* and *The 50 States of Grid Modernization*. These reports may be purchased at [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 grow 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

2019 ELECTRIC VEHICLE ACTION

In 2019, 49 states plus DC took a total of 601 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 601 actions cataloged, the most common were related to regulation (154), followed by financial incentives (141), and market development (118).

Table 1. 2019 Summary of Electric Vehicle Actions

Type of Action	# of Actions	% by Type	# of States
Regulation	154	26%	45
Financial Incentives	141	23%	36 + DC
Market Development	118	20%	26 + DC
Deployment	68	11%	27 + DC
Studies and Investigations	68	11%	34 + DC
Rate Design	52	9%	26 + DC
Total	601	100%	49 States + DC

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 2019

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

California

The California Public Utilities Commission approved utilities’ electric vehicle charging station deployment plans, which were proposed pursuant to A.B. 1082 and A.B. 1083 of 2017. California regulators also authorized San Diego Gas & Electric to deploy make-ready infrastructure for medium-duty and heavy-duty charging, and approved new charging rate options for Pacific Gas & Electric’s commercial customers. State lawmakers also enacted several bills related to electric vehicles during the year.

Minnesota

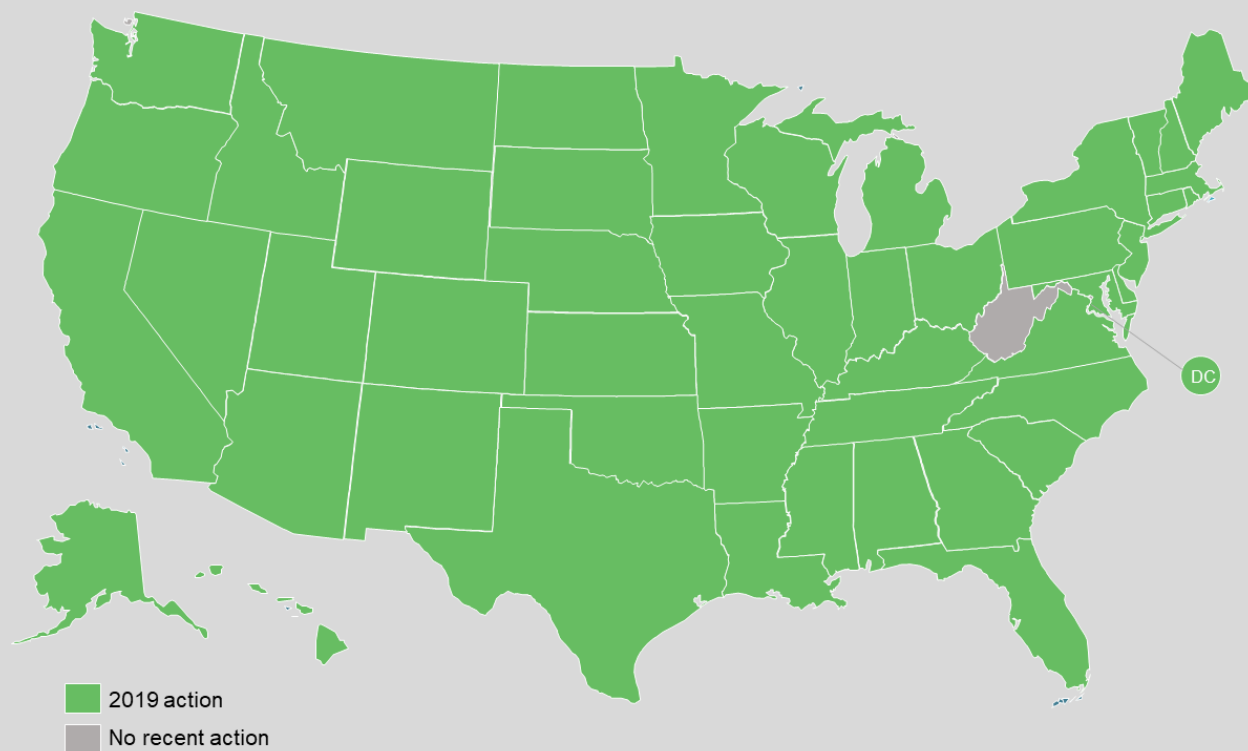
Utilities filed transportation electrification plans during 2019, pursuant to the Commission’s directive earlier in the year, which include plans for a variety of new electric vehicle programs

and rates. State regulators approved a new residential subscription rate pilot for Xcel Energy, as well as a public charging pilot and a fleet services pilot. The Commission also approved a commercial electric vehicle charging rate pilot for Minnesota Power.

Maryland

In early 2019, Maryland regulators approved electric vehicle programs for the state's four investor-owned utilities, including new rate designs, incentives, and direct charging station deployment. State lawmakers also enacted legislation establishing electric bus procurement requirements and extending high-occupancy vehicle lane access for plug-in electric vehicles.

Figure 1. 2019 Legislative and Regulatory Action on Electric Vehicles



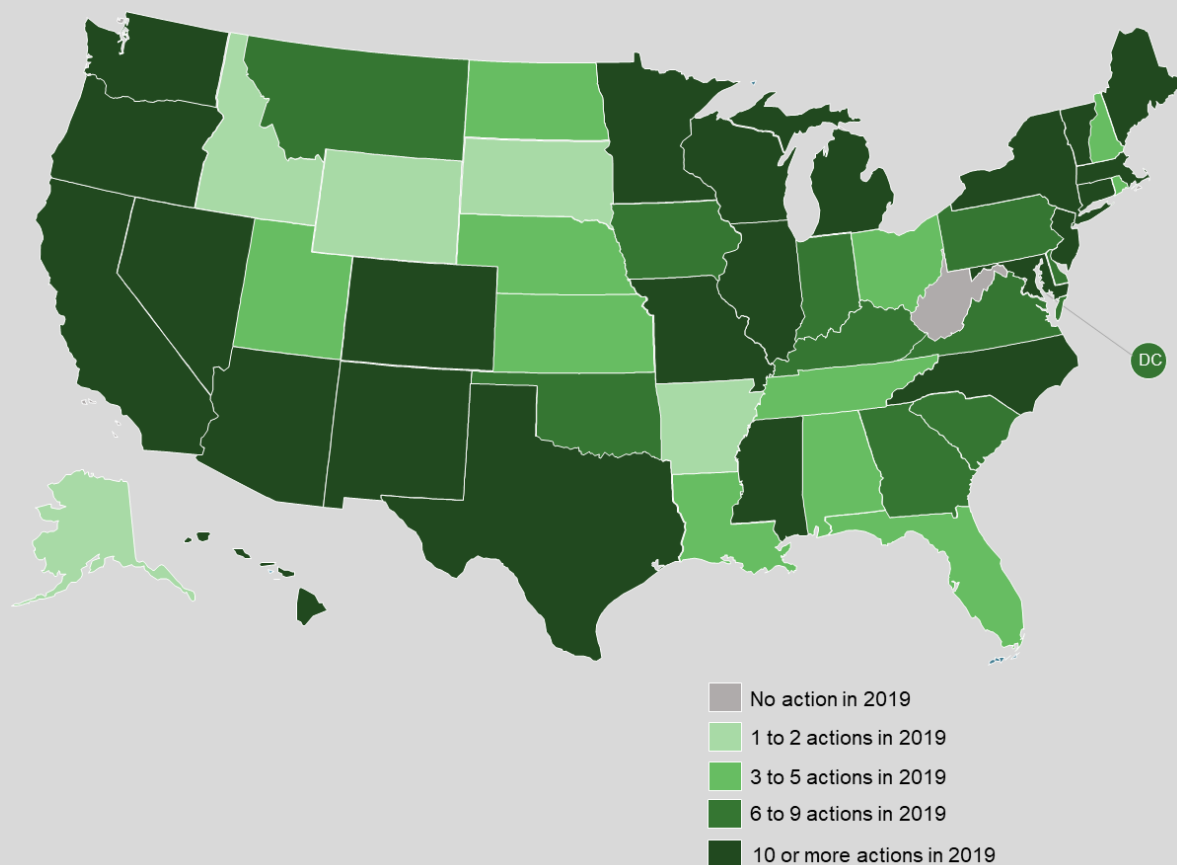
Oregon

Oregon regulators established rules for utility transportation electrification plans during 2019, with Portland General Electric and Idaho Power filing their plans later in the year. Regulators also approved new residential and commercial charging incentive programs for Portland General Electric. State lawmakers enacted legislation requiring 25% of state agencies' light-duty fleet purchases and leases to be zero-emission vehicles.

Vermont

The Public Utility Commission issued its final report and policy recommendations on electric vehicles during 2019. Vermont lawmakers enacted legislation requiring the Commission to continue its study efforts, focusing on rate designs and mechanisms to fund transportation infrastructure. This legislation also created a new electric vehicle incentive program, clarified that charging stations are not subject to utility regulation, and established electric vehicle procurement targets for state vehicles.

Figure 2. 2019 Electric Vehicle Activity, by Number of Actions



Arizona

In early 2019, the Arizona Corporation Commission adopted an electric vehicle policy statement. The Commission later approved an implementation plan including utility directives and clarification that charging stations are not classified as public utilities. The Commission approved new electric vehicle charging rates for Tucson Electric Power, and the state's three investor-owned utilities filed a statewide transportation electrification plan in late December 2019.

Colorado

The Colorado Public Utilities Commission issued a final report in its transportation electrification investigation early in 2019, while state legislators enacted several bills related to electric vehicles, including one allowing utilities to build charging stations as regulated services. The Colorado Air Quality Control Commission also adopted zero-emission vehicle standards during the year.

Michigan

The Michigan Public Service Commission approved electric vehicle charging incentive programs for both Consumers Energy and DTE Electric. The Commission also considered an electric vehicle charging program and a general service rate proposed by Indiana Michigan Power. As a part of the Commission's decision on DTE's program, it also approved a demand charge holiday for public fast charging stations.

New Jersey

The New Jersey Board of Public Utilities launched new electric vehicle fleet incentives, announced efforts to develop another electric vehicle incentive program, and considered an electric vehicle charging program proposal from PSE&G New Jersey during 2019. State legislators considered many bills related to electric vehicles, while state agencies addressed clean transportation in the Energy Master Plan.

District of Columbia

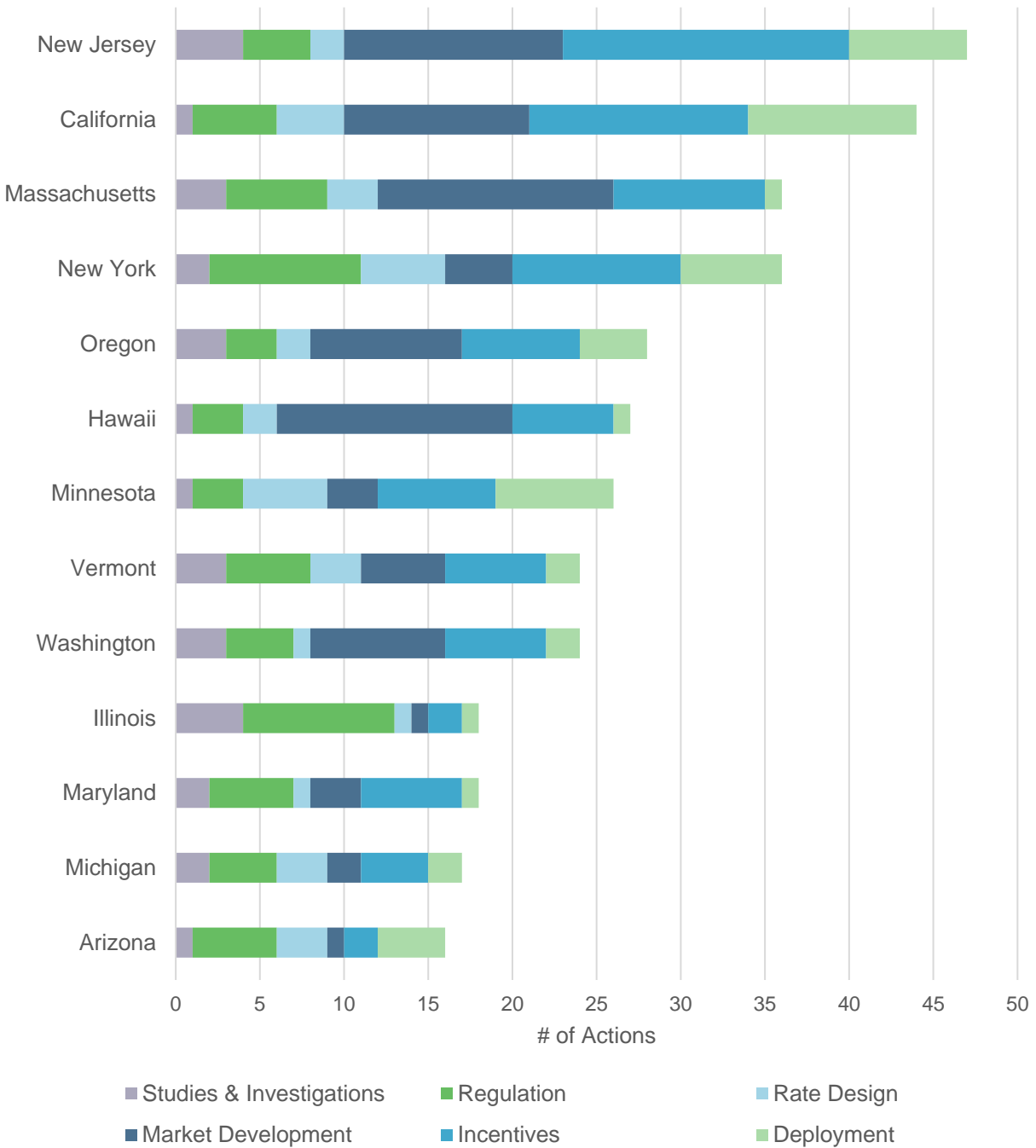
The DC Public Service Commission issued a decision on Pepco's expansive transportation electrification plan during 2019, approving some of the programs and specifying that Pepco may only own the make-ready infrastructure. Pepco's proposal included 13 separate programs. The Commission also established a transportation electrification working group to further develop offerings for a fixed price residential rebate and multi-unit dwelling charging station deployment.

TOP ELECTRIC VEHICLE TRENDS OF 2019

States Requiring Utilities to Develop Transportation Electrification Plans

Policymakers and regulators in several states directed utilities to develop comprehensive transportation electrification plans during 2019. Lawmakers in New Mexico and Washington passed bills related to transportation electrification plans during the year. Oregon regulators established guidelines for utility transportation plans, and Minnesota regulators directed utilities to file plans before July 2019. The Arizona Corporation Commission required utilities to file a statewide transportation electrification plan by the end of 2019.

Figure 3. Most Active States of 2019, by Number of Actions



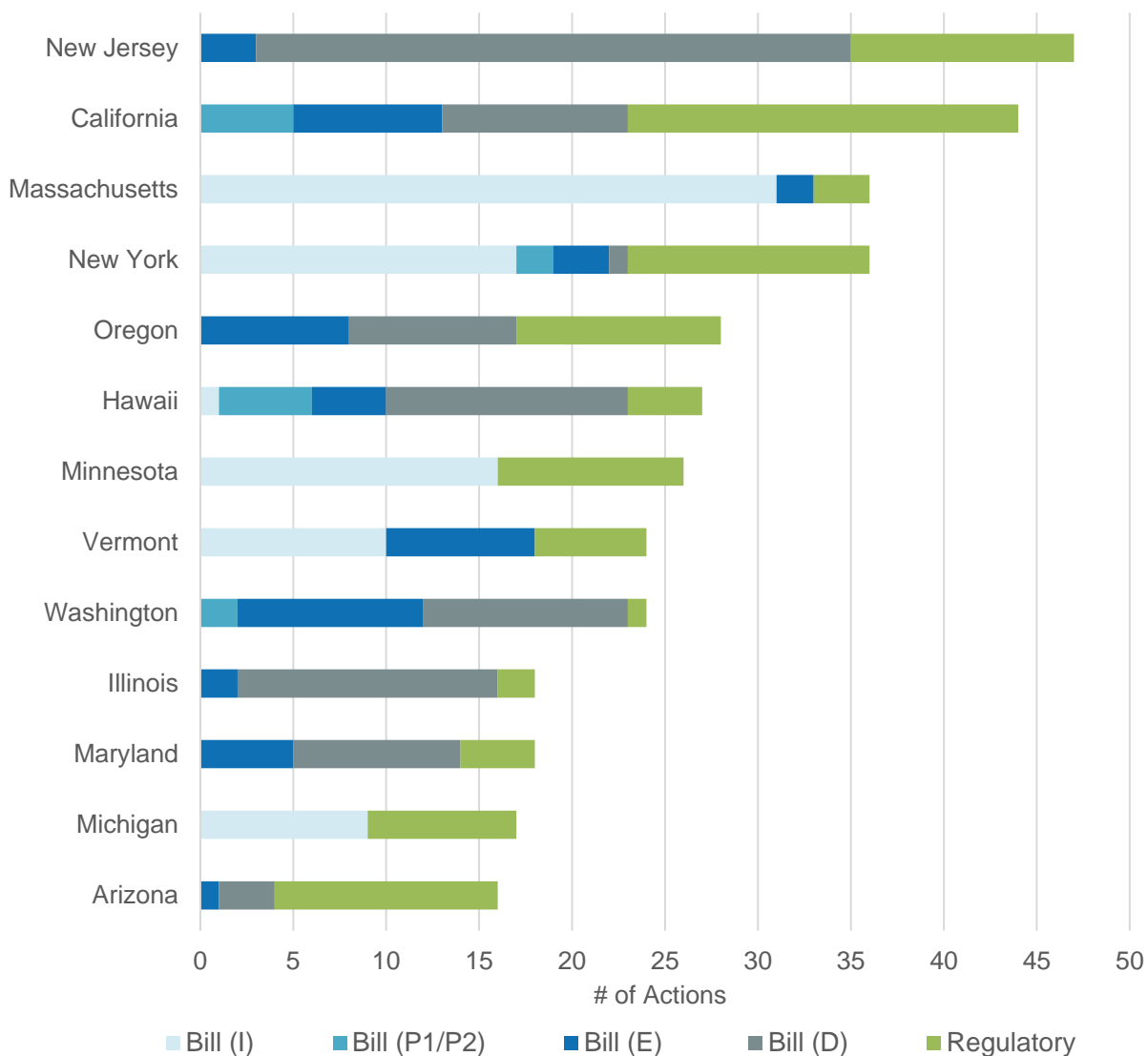
State Legislators Adopting Additional Registration Fees for Electric Vehicles

Legislators in ten states – Alabama, Arkansas, Hawaii, Iowa, Illinois, Kansas, North Dakota, Ohio, Washington, and Wyoming – approved additional registration fees for electric vehicles in 2019. These fees are typically adopted in order to make up for reduced gasoline tax revenues associated with increased use of electric and hybrid vehicles. Twenty-eight states currently have additional registration fees for electric vehicles, which range from \$50 to \$225.

State Regulators Considering Utility Ownership of Charging Infrastructure

Utility regulators across the country are considering whether utilities should be permitted to own and operate electric vehicle charging infrastructure. DC regulators issued a decision allowing Pepco to own make-ready equipment only, while the Maryland Public Service Commission regulators authorized utilities to own a limited number of charging stations to jumpstart the development of a public charging network.

Figure 4. Most Active States of 2019, by Action Status



States Exempting Charging Stations from Utility Regulation

In 2019, nine states – Arizona, Delaware, Iowa, Kentucky, Missouri, Montana, New Mexico, North Carolina, and Vermont – clarified that electric vehicle charging stations are not subject to utility regulation and may resell electricity to the public. Iowa regulators also specified that

charging stations powered by behind-the-meter generation are covered by this exception, and Michigan regulators removed the prohibition of sales of electricity for resale from DTE Electric's Charging Forward tariff.

Lawmakers Adopting Zero-Emission Vehicle Procurement Targets for State Fleets

A number of states considered legislation adopting zero-emission vehicle or electric vehicle procurement targets for state fleets during 2019. Connecticut lawmakers adopted a requirement that 50% of light-duty state vehicles be zero-emission vehicles by 2030, while Oregon legislators enacted a bill requiring 25% of state agency light-duty vehicle purchases and leases to be zero-emission vehicles. Legislators in Vermont and Maryland also adopted electric vehicle and zero-emission school bus procurement targets, respectively.

Utilities Developing Rate Designs to Promote DC Fast Charging

Utilities continued to develop new rate structures to encourage fast charging station development by mitigating the impact of demand charges. Maryland utilities proposed distribution demand charge credits for fast charging stations, and Michigan regulators approved a five-year demand charge holiday for DTE Electric. New York regulators approved an incentive for fast charging stations that is intended to offset the impact of demand charges.

Utilities Proposing Individual Programs to Address Different Market Segments

Utilities are frequently filing proposals for multiple electric vehicle programs, with each targeting a specific market segment, such as residential charging, workplace charging, multi-family buildings, fleets, public charging, fast charging, and buses. States considering such targeted proposals during 2019 include California, DC, Delaware, Maryland, Michigan, Minnesota, North Carolina, Oregon, and South Carolina, among others.

Growing Interest in Subscription Pricing Pilots for Electric Vehicle Charging

States and utilities showed growing interest in subscription rates for electric vehicle charging in 2019. Minnesota regulators approved a subscription rate pilot for Xcel Energy during the year, which will provide unlimited off-peak charging to participating residential customers for a fixed monthly fee. California regulators also approved a subscription rate for Pacific Gas & Electric including a fixed charge and time-of-use energy rates for commercial charging.

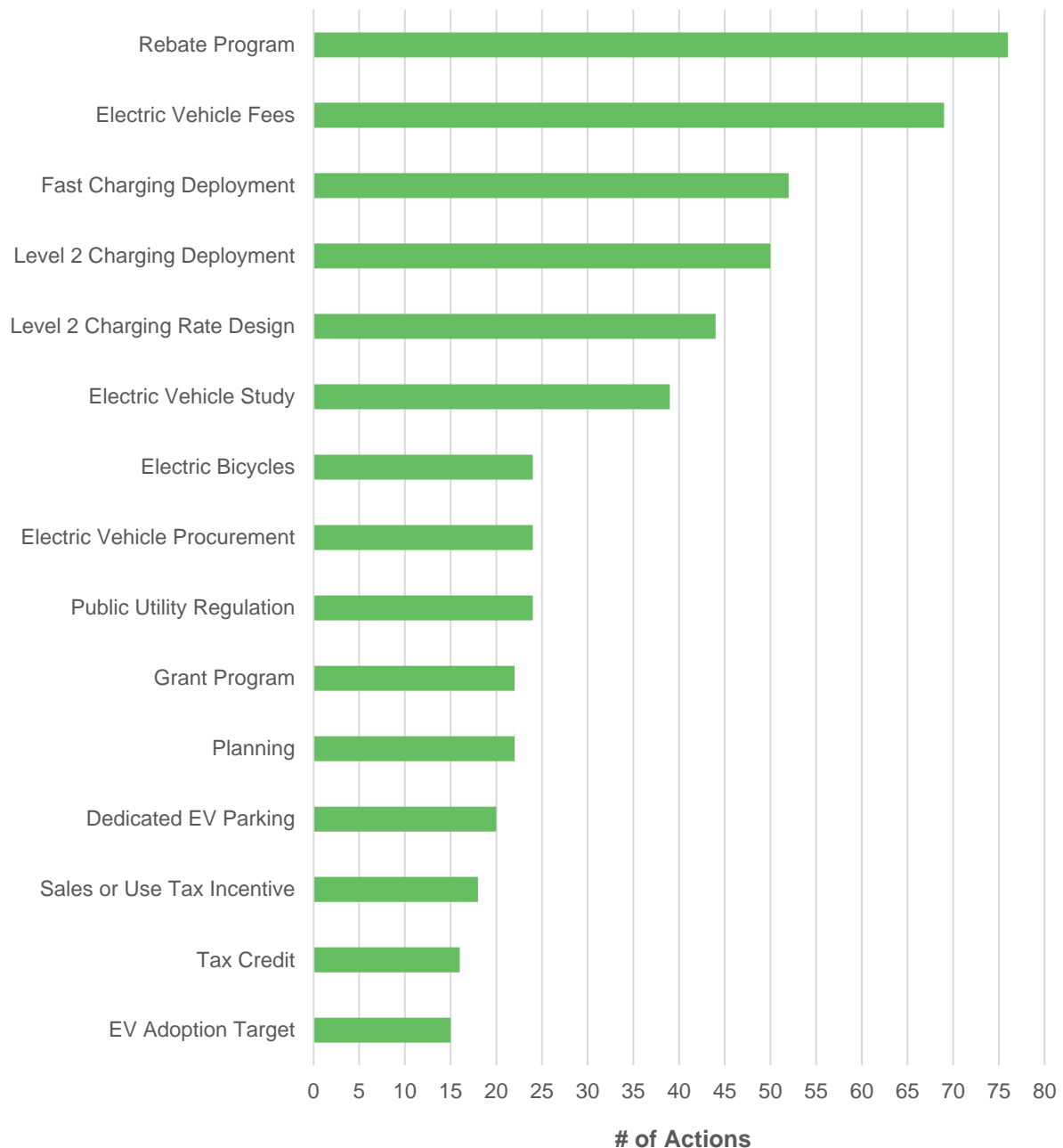
Utilities Working to Accelerate Transit and School Bus Electrification

Many utilities proposed programs aimed at transit and school bus electrification during 2019. Duke Energy proposed electric bus programs in Indiana, Kentucky, North Carolina, and South Carolina, while Dominion Virginia Energy announced plans to deploy electric school buses. Regulators also considered electric bus programs proposed by utilities in California, DC, Michigan, and New York.

States and Utilities Adopting New Incentives for Electric Vehicles and Charging Equipment

State policymakers and utilities established several new incentive programs for electric vehicles and charging equipment during 2019. At the state level, significant new incentives were adopted in Hawaii, Maine, New Jersey, Rhode Island, and Vermont, while regulators also approved new utility incentives in California, Delaware, Maryland, Michigan, New York, and Oregon.

Figure 5. Top Electric Vehicle Actions of 2019



IN COMPARISON: 2018 VS. 2019

Total electric vehicle action increased by 42% over the past year and 165% over the past two years, with states and utilities taking approximately 227 actions in 2017, 424 actions in 2018, and 601 actions in 2019. In 2019, activity increased in every category tracked by this report by the following amounts compared to 2018: Studies & Investigations: 28%, Regulation: 51%, Rate Design: 4%, Market Development: 51%, Incentives: 58%, and Deployment: 31%. The number of states taking actions in each electric vehicle category also increased from 2018 to 2019.

Figure 6. Number of Electric Vehicle Actions 2017-2019

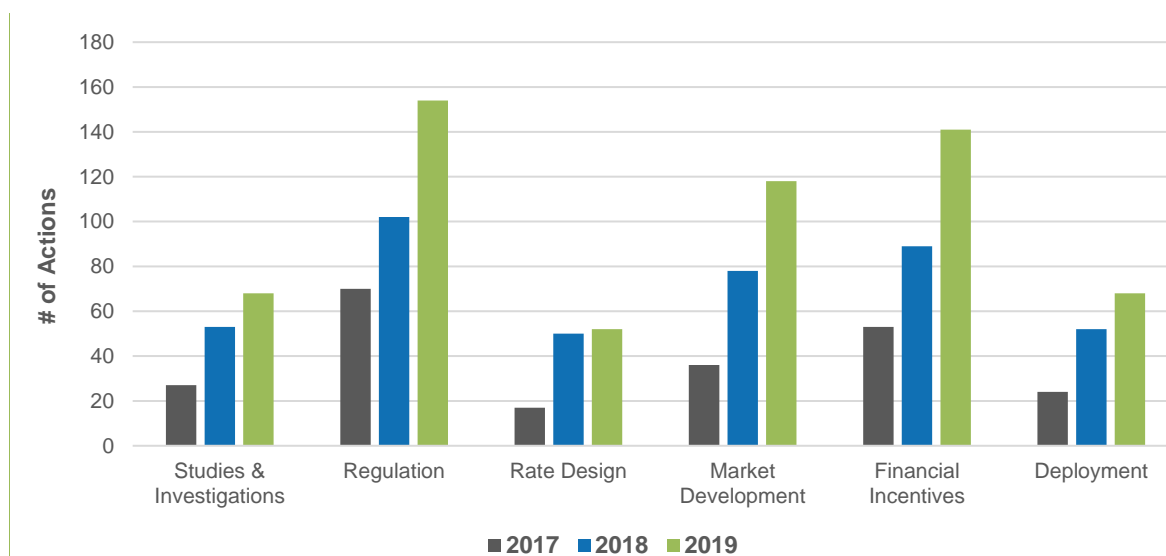
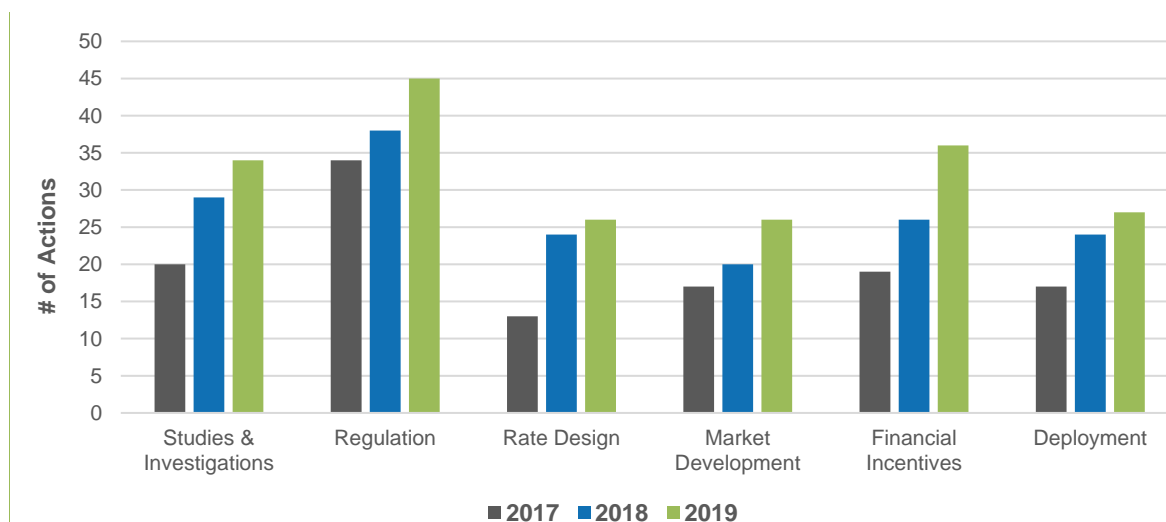


Figure 7. Number of States Taking Electric Vehicle Actions 2017-2019



Q4 2019 ELECTRIC VEHICLE ACTION

In Q4 2019, 42 states plus DC took a total of 294 legislative and regulatory actions related to electric vehicles. Table 2 provides a summary of state and utility actions occurring during Q4 2019. Of the 294 actions catalogued, the most common were related to Financial Incentives (78), followed by Market Development (60), and Deployment (44).

Table 2. Q4 2019 Summary of Electric Vehicle Actions

Type of Action	# of Actions	% by Type	# of States
Financial Incentives	78	27%	21 + DC
Market Development	60	20%	15 + DC
Deployment	44	15%	16 + DC
Regulation	42	14%	17
Studies and Investigations	42	14%	28 + DC
Rate Design	28	10%	16 + DC
Total	294	100%	42 States + DC

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 2019

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

California Regulators Approve Utility Charging Station Deployment at Schools, State Parks, and Beaches

The California Public Utilities Commission approved proposals from Liberty Utilities, Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Edison to deploy electric vehicle charging stations at schools, state parks, and beaches, pursuant to A.B. 1082 and A.B. 1083 of 2017. The Commission’s decision also requires certain utilities to offer rebates for participants choosing site-host ownership and to focus 40% of school charging ports in disadvantaged communities.

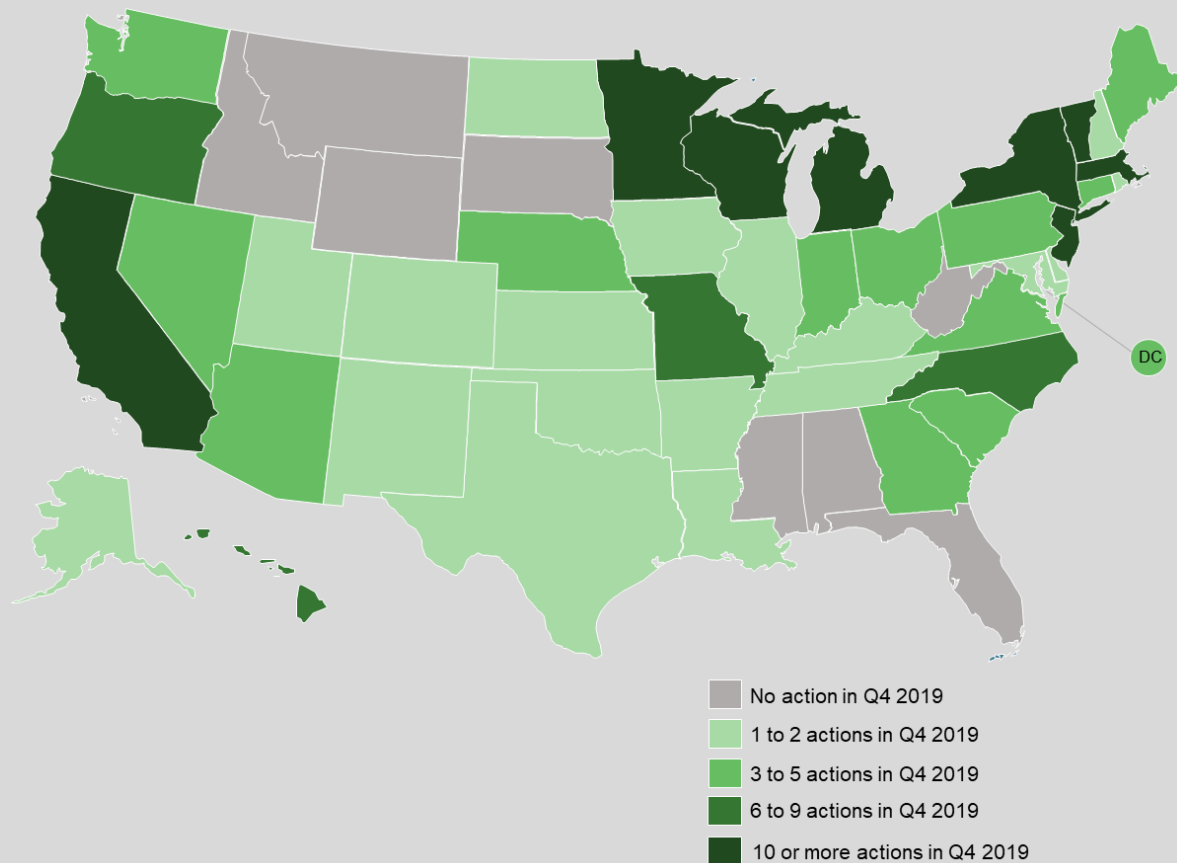
Arizona Utilities File Statewide Transportation Electrification Plan

In late December 2019, Arizona’s investor-owned utilities filed their statewide transportation electrification plan. The plan evaluates different technologies to electrify transportation, as well as policies and programs currently in place. The plan presents potential program options to overcome barriers to transportation electrification, as well as the utilities’ Phase Two plans, which include additional analysis and stakeholder engagement.

Minnesota Regulators Approve Subscription Rate for Electric Vehicle Charging

The Minnesota Public Utilities Commission approved a modified version of Xcel Energy's proposed subscription rate pilot for residential electric vehicle charging in October 2019. Participating customers will pay a fixed monthly fee for unlimited off-peak charging, and will pay the on-peak per-kwh rate for any on-peak charging. Xcel's original proposal would have included a 34 kWh monthly allowance for on-peak charging.

Figure 8. Q4 2019 Legislative and Regulatory Action on Electric Vehicles



Delaware Regulators Exempt Charging Stations from Utility Regulation

The Delaware Public Service Commission issued an order in December 2019, stating that electric vehicle charging stations and service providers are not considered public utilities or electric suppliers. The Commission had previously directed Staff to propose legislation exempting electric vehicle charging stations from Commission regulation, but the legislation failed to pass.

Draft Electric Vehicle Roadmap Released and Zero-Emission Vehicle Docket Opened in Connecticut

The Connecticut Department of Energy and Environmental Protection released its draft electric vehicle roadmap in 2019, including a wide array of policy recommendations on topics such as rate design, charging station deployment, incentives, and customer experience. The Public Utilities Regulatory Authority also opened a new docket on zero-emission vehicles as part of its grid modernization proceeding.

Figure 9. Most Active States of Q4 2019

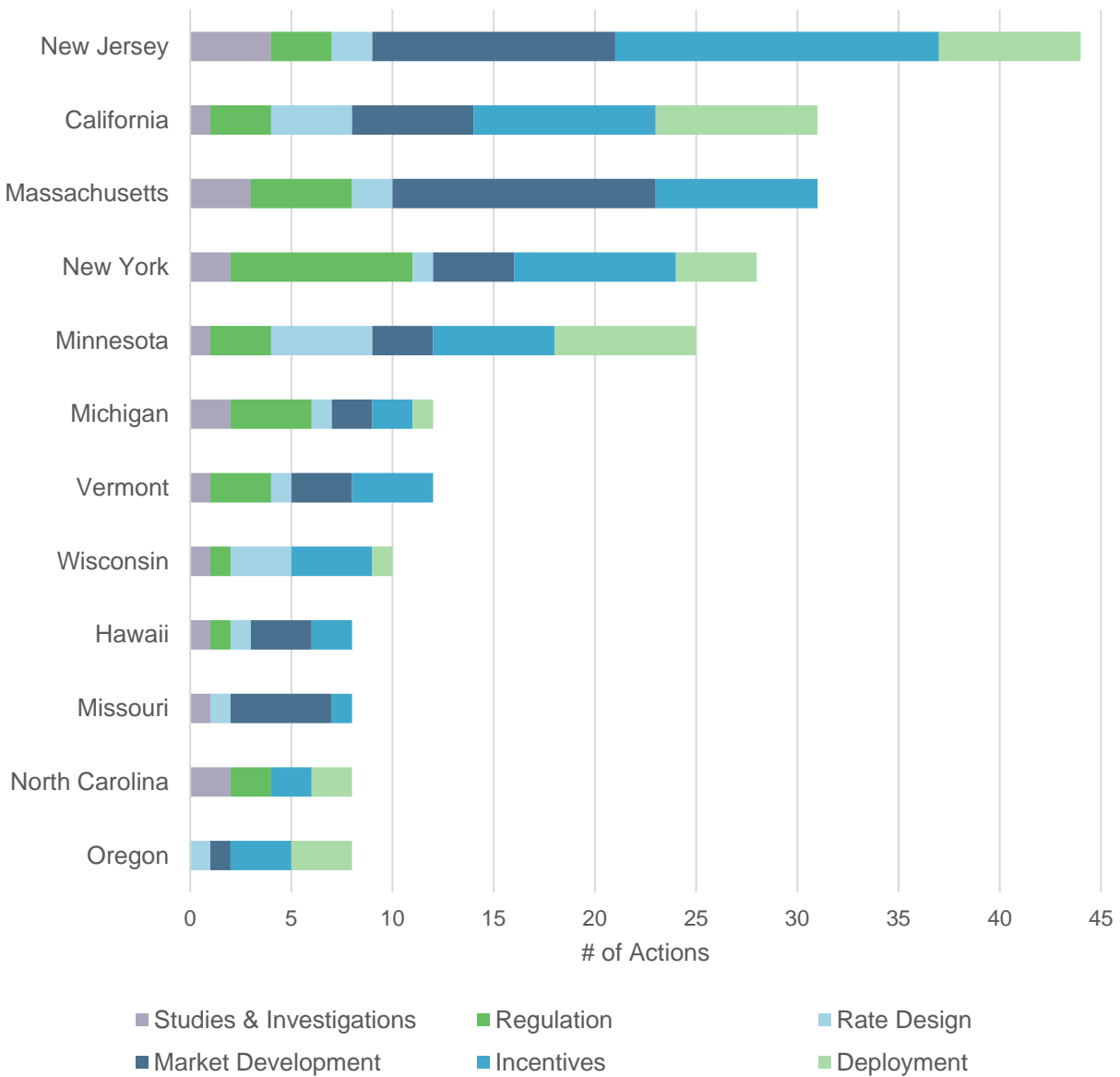


Figure 10. Electric Vehicle Action by Category, Q1 2018 to Q1 2019

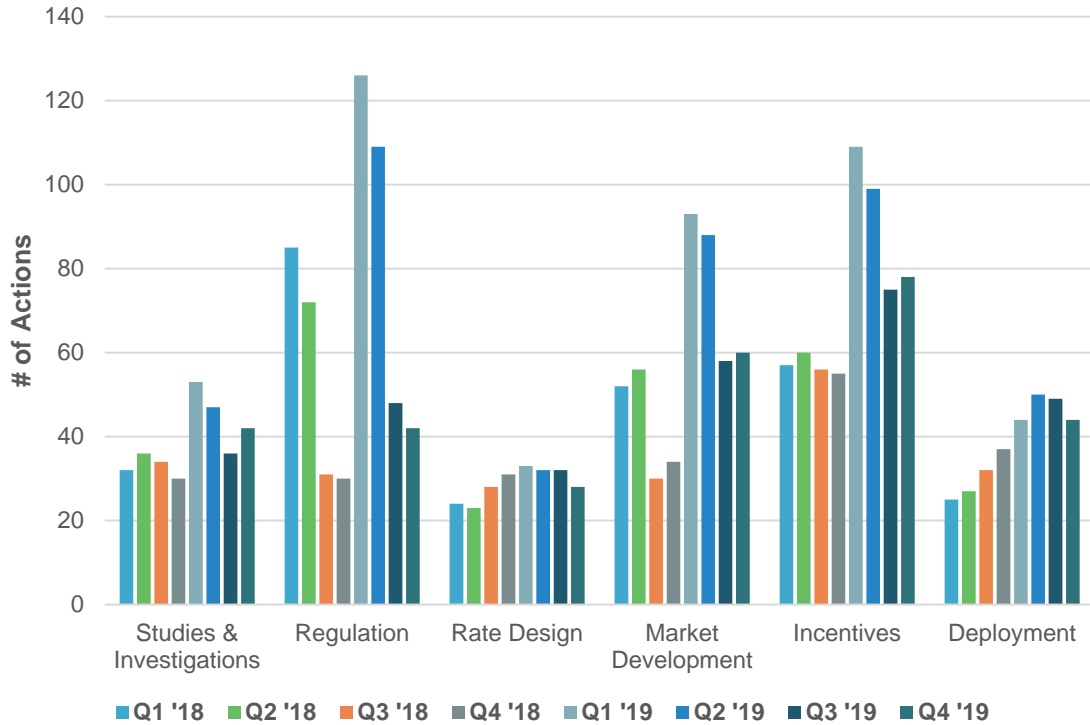
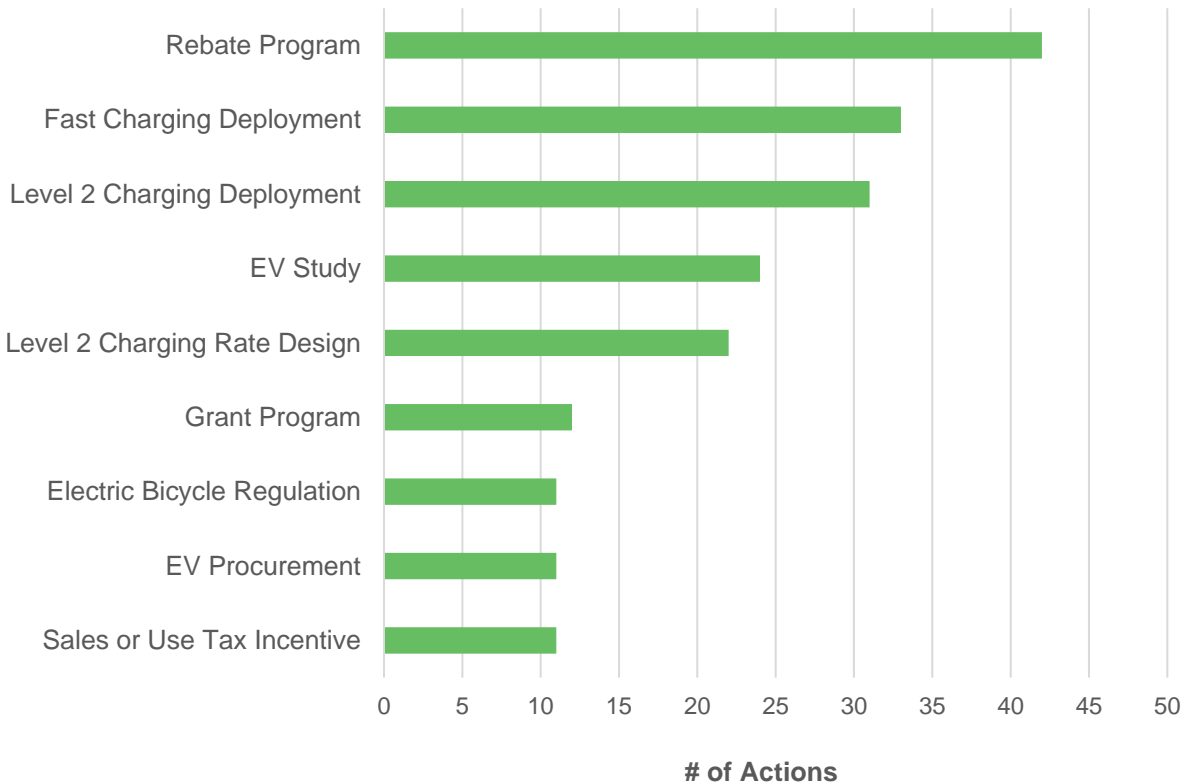


Figure 11. Top Electric Vehicle Actions of Q4 2019



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

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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, & quarterly webinars for solar, grid modernization/energy storage, & electric vehicles)</i>	\$10,500	N/A

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