

50 STATES OF ELECTRIC VEHICLES

**Q4 2021 Quarterly Report
& 2021 Annual Review**

Executive Summary



NC CLEAN ENERGY
TECHNOLOGY CENTER

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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

2021 ELECTRIC VEHICLE ACTION

In 2021, 50 states plus DC took a total of 775 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 775 actions identified, the most common were related to financial incentives (188), followed by regulation (180) and market development (147).

Table 1. 2021 Summary of Electric Vehicle Actions

| Type of Action | # of Actions | % by Type | # of States |
|----------------------------|--------------|-------------|-----------------------|
| Financial Incentives | 188 | 24% | 35 |
| Regulation | 180 | 23% | 47 + DC |
| Market Development | 147 | 19% | 28 |
| Rate Design | 91 | 12% | 34 + DC |
| Studies and Investigations | 85 | 11% | 33 |
| Deployment | 84 | 11% | 43 + DC |
| Total | 775 | 100% | 50 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 2021

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

California

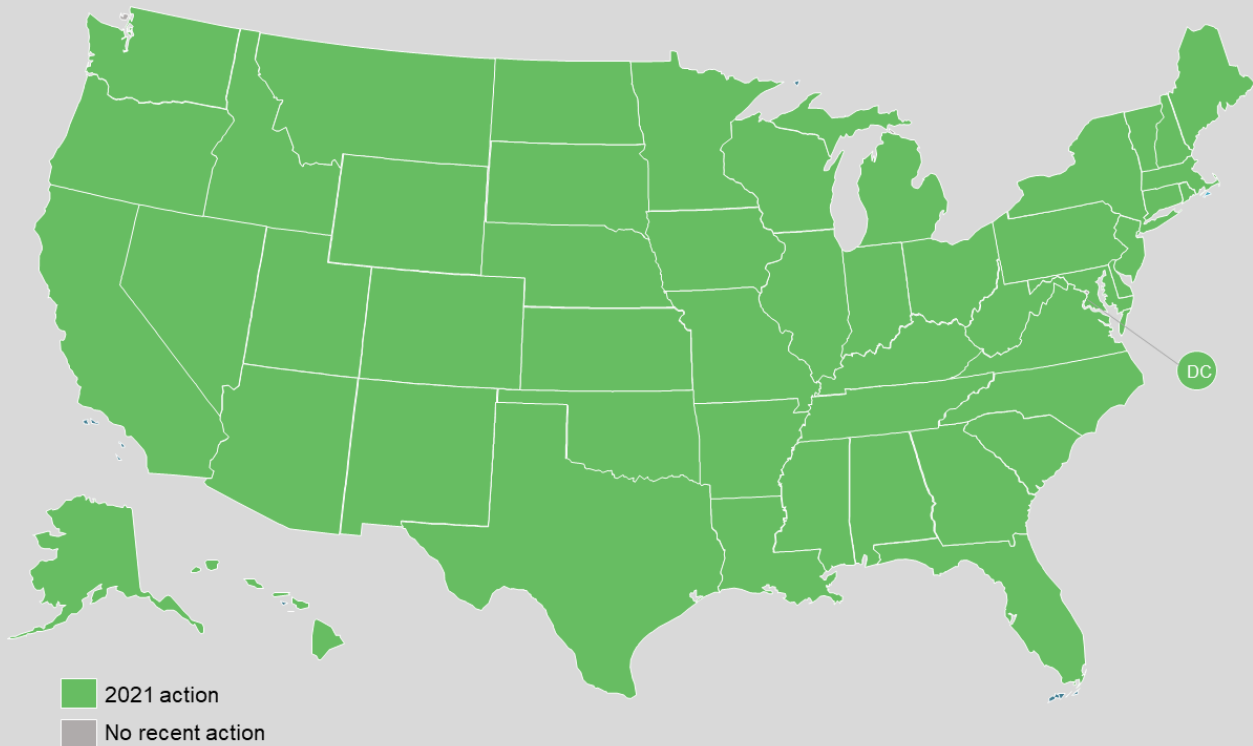
California regulators approved a framework for transportation electrification investments during 2021, as well as San Diego Gas & Electric’s Power Your Drive \$44 million program extension. The California Air Resources Board is developing clean miles standard rules for transportation network companies, as well as rules that would promote heavy-duty zero-emission vehicle sales. State legislators also enacted numerous bills related to electric vehicles during the year.

Connecticut

The Connecticut Public Utilities Regulatory Authority approved an expansive electric vehicle program in 2021, including a make-ready ownership model and charging station incentives. PURA also directed the utilities to propose managed charging programs, and later opened an

investigation into medium- and heavy-duty electric vehicle charging. State lawmakers enacted legislation requiring at least 50% of cars and light-duty trucks, as well as 30% of buses, purchased or leased by the state to be zero-emission vehicles by 2030.

Figure 1. 2021 Legislative and Regulatory Action on Electric Vehicles



Illinois

Illinois legislators enacted a major energy bill in 2021, which sets a goal of having one million electric vehicles deployed in the state by 2030. The bill directs large utilities to file beneficial electrification plans including make-ready infrastructure deployment, electric vehicle rates, optimized charging programs, demand rate alternatives, and greater access to fast chargers. The Governor also issued an executive order to promote state electric vehicle procurement.

New Mexico

The New Mexico Public Regulation Commission approved major transportation electrification plans for El Paso Electric, PNM, and Xcel Energy during 2021. The plans include a variety of charging infrastructure incentives and new rate designs. The New Mexico Environment Department also began a clean cars rulemaking process to establish low- and zero-emission standards for new vehicles sold in the state.

Colorado

Colorado regulators issued a decision approving major electric vehicle programs for Xcel Energy and Black Hills Energy during 2021. The programs include a combination of new rate options for electric vehicle charging, incentive programs, and direct utility charging infrastructure development. State lawmakers also enacted legislation authorizing new incentives for electric vehicles and charging infrastructure, while modifying electric vehicle registration fees.

Massachusetts

Massachusetts' three investor-owned utilities, Eversource, National Grid, and Unitil, filed electric vehicle program applications in 2021 including incentives, rate options, and make-ready infrastructure deployment. The Governor issued an executive order requiring all state fleets to purchase zero-emission vehicles beginning in 2022 and the number of charging stations installed at state facilities to be doubled by 2030.

Oregon

In Oregon, regulators considered the adoption of a transportation electrification investment framework, as well as specific program proposals from Portland General Electric and PacifiCorp. State lawmakers also enacted legislation regarding electric vehicle-ready building codes, while the Department of Transportation completed a transportation electrification infrastructure needs analysis.

Nevada

The Public Utilities Commission of Nevada addressed transportation electrification planning in 2021 and approved NV Energy's Economic Recovery Transportation Electrification Plan, which includes the development of an interstate charging corridor, as well as charging station incentives. The Division of Environmental Protection continued a rulemaking to develop low- and zero-emission standards for light-duty vehicles.

TOP ELECTRIC VEHICLE TRENDS OF 2021

Utilities Working to Develop Fast Charging Networks

Utilities across the U.S. are taking steps to develop networks of fast charging stations. Throughout 2021, utilities announced that they had joined the Electric Highway Coalition, which later grew to become the National Electric Highway Coalition later in the year. The coalition is collaborating to develop fast charging stations along major travel corridors by the end of 2023. Several utilities also requested regulatory approval for fast charger investments or incentive programs to build out such a network.

Dedicated Support for Low-Income Customers and Underserved Communities

Many states and utilities are including dedicated investment for low-income customers and underserved communities in their transportation electrification programs. California regulators are requiring that utility proposals for transportation electrification investments set aside at least 50% of infrastructure or investment to support underserved communities. In Connecticut, the state's recently approved electric vehicle incentive program includes higher incentive payments for underserved communities.

Figure 3. Top Electric Vehicle Actions of 2021

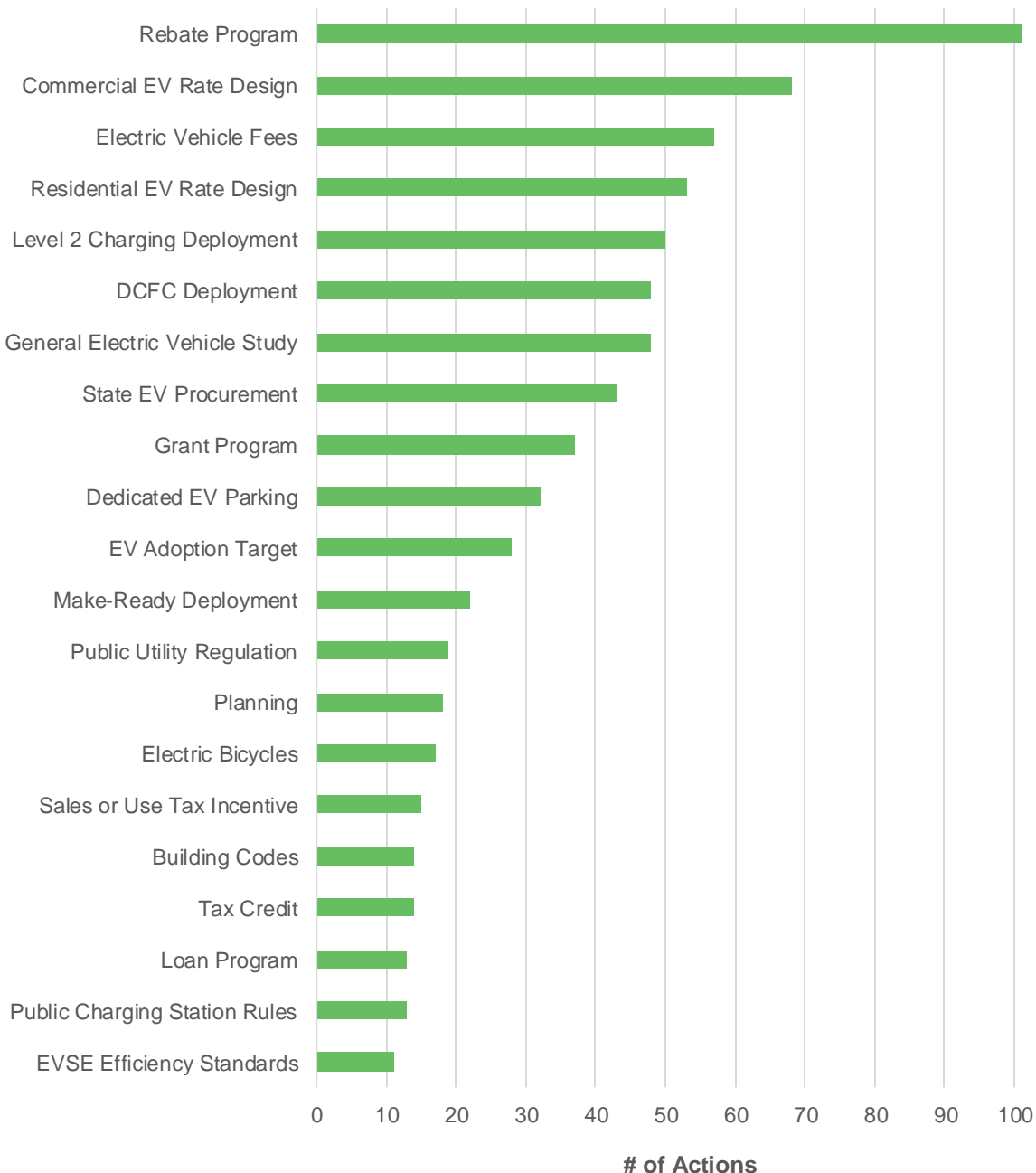


Figure 4. Number of Electric Vehicle Actions 2017-2021

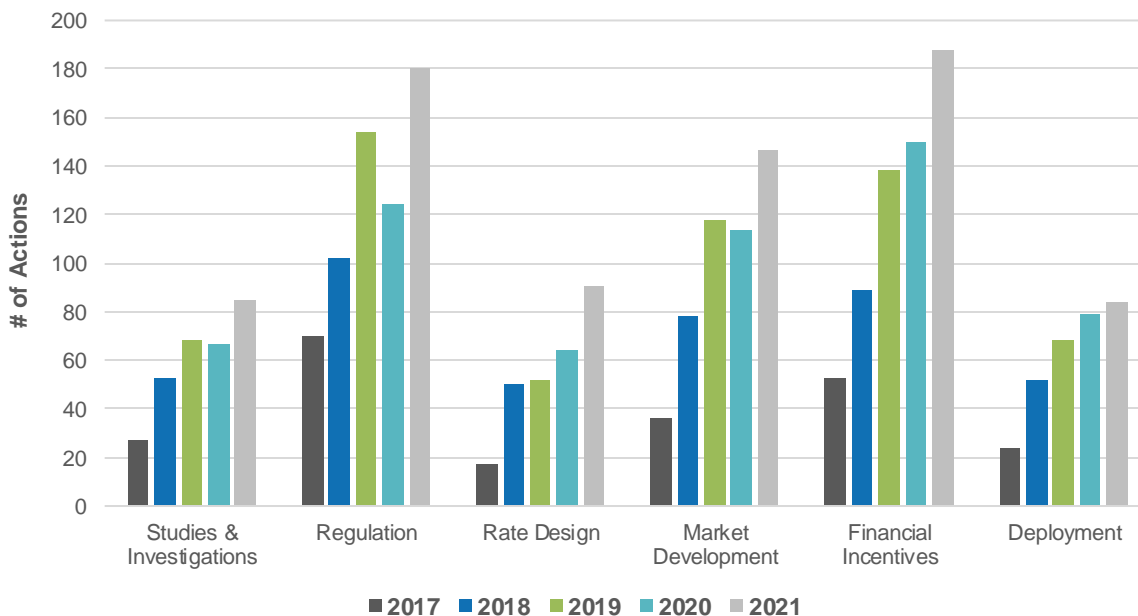
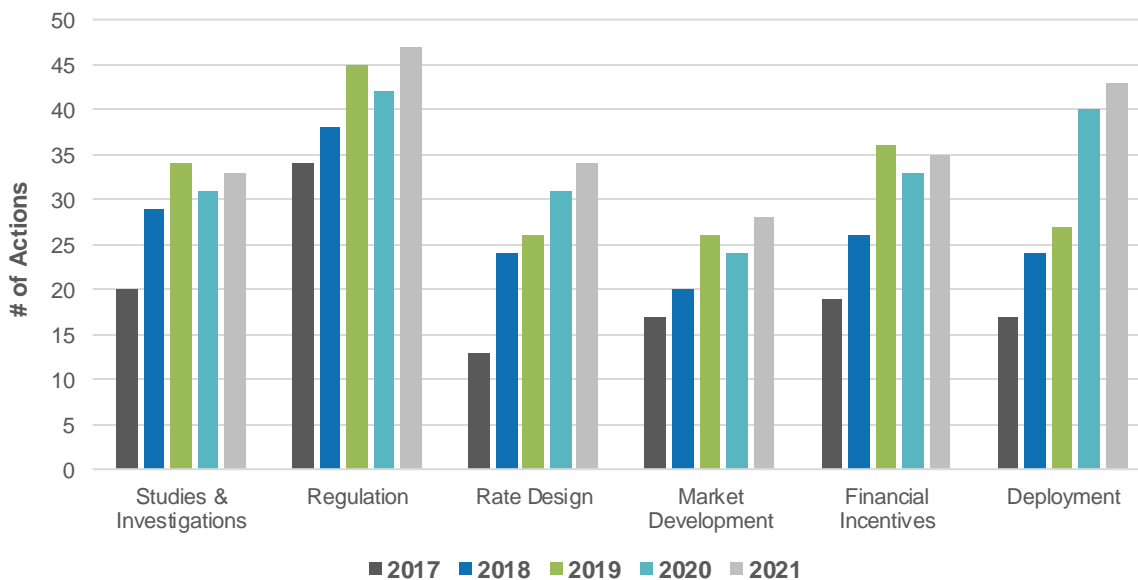


Figure 5. Number of States Taking Electric Vehicle Actions 2017-2021



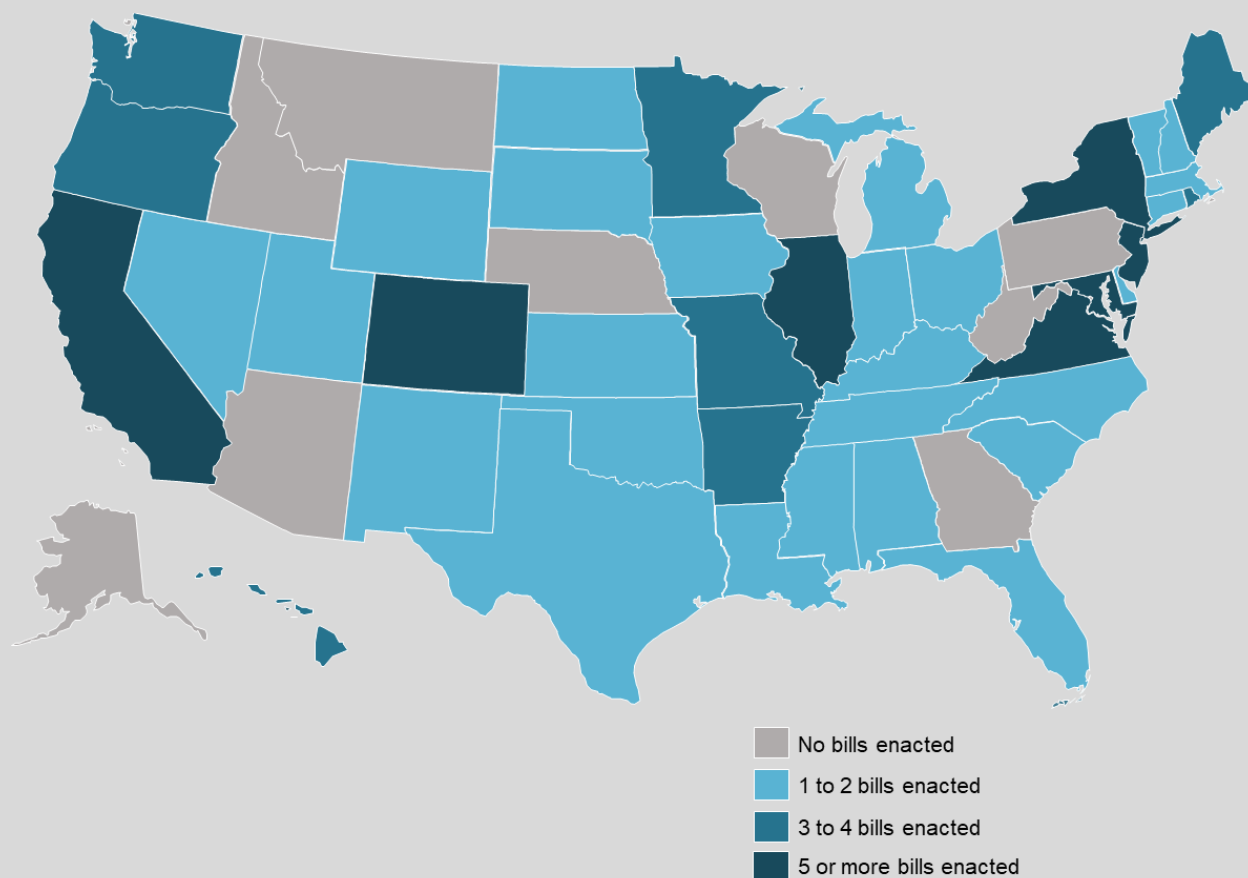
Utilities Continue to File Expansive Transportation Electrification Plans

Utilities continued to file transportation electrification plans during 2021, often including a variety of incentives, rates structures, and infrastructure deployment targeting multiple market segments. Regulators approved transportation electrification plans filed by utilities in New Mexico, while Massachusetts utilities filed new plans, and Arizona regulators directed utilities to file plans by June 2022.

Growing Attention on Medium- and Heavy-Duty Vehicle Electrification

States are paying increasing attention to medium- and heavy-duty vehicle electrification, with light-duty vehicle electrification strategies well underway in many places. In New Jersey, the Board of Public Utilities filed a straw proposal for medium- and heavy-duty vehicle electrification, while Connecticut regulators opened an investigatory proceeding on the topic. Meanwhile, the California Air Resources Board approved rules on zero-emission trucks and is developing heavy-duty vehicle emission regulations.

Figure 6. Electric Vehicle Legislation Enacted in 2021



States and Utilities Using Rebates to Advance Transportation Electrification

With cost being a major barrier to electric vehicle adoption, rebates are proving to be a common tool among states and utilities to advance transportation electrification. Regulators in numerous states, including Colorado, Nevada, New Mexico, and Wisconsin, approved new utility rebates for charging stations. In Illinois, state lawmakers passed legislation creating a new rebate program for electric vehicle purchases.

Consideration of Demand Charge Alternatives Based on Load Factor

While a number of utilities have adopted demand charge holidays or reductions for commercial charging stations, a growing number of utilities are proposing demand charge alternatives that are based on load factor. Arizona Public Service proposed a rider for public DCFC stations that would include a demand limiter based on load factor, while utilities in Massachusetts requested approval to implement tariffs with a sliding scale of demand charges based on load factor.

Make-Ready Deployment Model on the Rise

A growing number of states and utilities are using a make-ready deployment model for charging infrastructure development, where the utility owns the site make-ready infrastructure and site hosts or third parties own the charging stations. Connecticut regulators approved a program using the make-ready model, while programs under consideration in Hawaii, New Hampshire, New Jersey, and Oregon would also utilize this model.

States Setting Zero-Emission Vehicle Procurement Targets

A number of states adopted new targets for government procurement of zero-emission vehicles during 2021. Connecticut legislators adopted a target of having at least 50% of cars and light-duty trucks purchased or leased by the state be zero-emission vehicles by 2030, while Hawaii is requiring that all new light-duty passenger vehicles purchased by the state be zero-emission vehicles beginning in 2022.

Utilities Developing Managed Charging Programs

Managed charging programs are on the rise, with some of these programs offering varying levels of engagement. In Connecticut, utilities proposed a managed charging program including baseline and advanced tiers, and New York regulators are reviewing utility managed charging programs that have passive and active options. Legislation enacted in Illinois requires utilities to file beneficial electrification plans with optimized charging programs.

Policymakers Addressing Local Barriers to Charging Infrastructure Development

A growing area of focus for state policymakers has been local-level barriers to charging infrastructure development, such as homeowner's association rules and municipal permitting. In New Jersey, a model municipal ordinance for streamlining the local approval process was created, while lawmakers in Maryland passed legislation providing that condominium and homeowner's associations may not unreasonably restrict charging station installation.

Figure 7. Most Active States of 2021, by Number of Actions

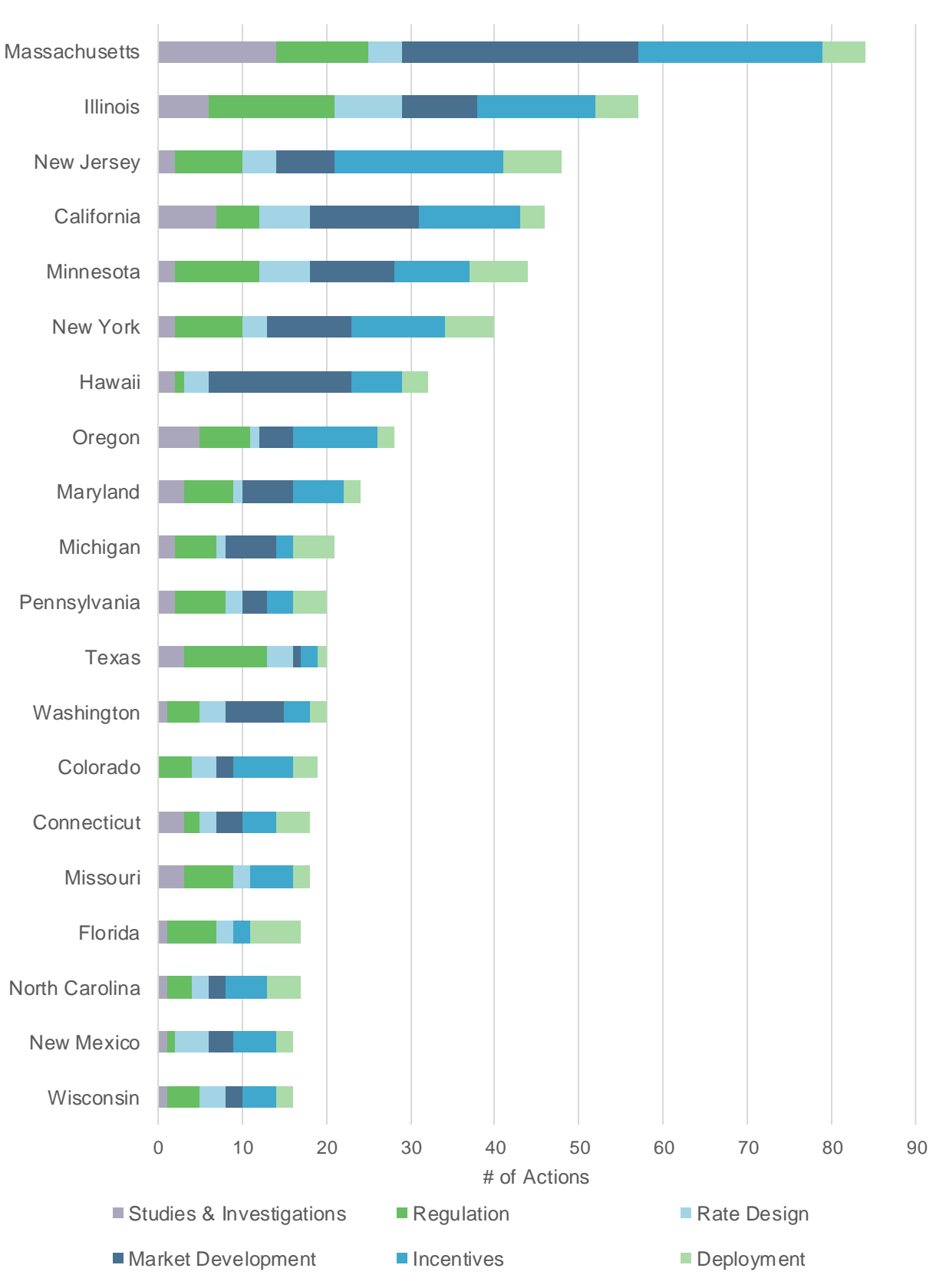
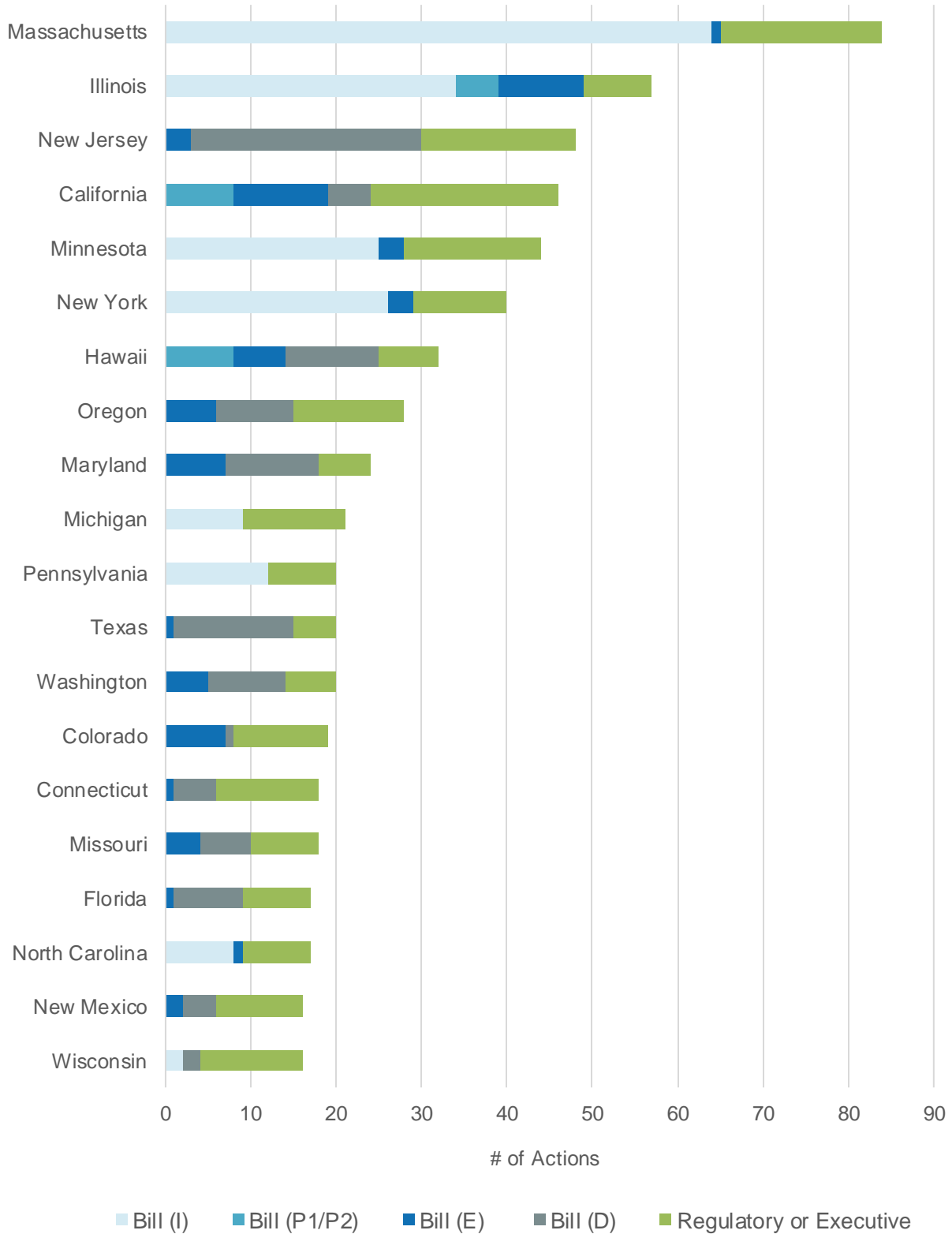


Figure 8. Most Active States of 2021, by Action Status



Q4 2021 ELECTRIC VEHICLE ACTION

In Q4 2021, 43 states plus DC took a total of 414 legislative and regulatory actions related to electric vehicles. Table 2 provides a summary of state and utility actions occurring during Q4 2021. Of the 414 actions catalogued, the most common were related to Financial Incentives (105), followed by Market Development (85), and Regulation (76).

Table 2. Q4 2021 Summary of Electric Vehicle Actions

| Type of Action | # of Actions | % by Type | # of States |
|----------------------------|--------------|-------------|-----------------------|
| Financial Incentives | 105 | 25% | 29 |
| Market Development | 85 | 21% | 17 |
| Regulation | 76 | 18% | 21 + DC |
| Rate Design | 58 | 14% | 30 |
| Studies and Investigations | 49 | 12% | 25 |
| Deployment | 41 | 10% | 25 |
| Total | 414 | 100% | 43 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 2021

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

Arizona Corporation Commission Approves Comprehensive Transportation Electrification Plan

In December 2021, the Arizona Corporation Commission approved the comprehensive transportation electrification plan filed by utilities. The plan includes a 2030 goal of 1.076 million light-duty electric vehicles, as well as goals for medium-duty parcel delivery trucks, electric transit buses, and electric school buses. The Commission directed the utilities to file transportation electrification implementation plans by June 2022.

Clean Transportation Policy Recommendations Developed in Maine and Rhode Island

A clean transportation roadmap was released in in Maine in December 2021, which discusses several policy and program recommendations to advance transportation electrification in the state. A similar effort was completed in Rhode Island, where a strategic policy guide for transportation electrification was published, also identifying priorities and policy recommendations.

National Electric Highway Coalition Formed

In December 2021, the National Electric Highway Coalition was formed, which aims to develop electric vehicle fast charging stations along major U.S. travel corridors by the end of 2023. The coalition is a collaboration among electric utilities and currently includes over fifty utilities across 47 states and DC. The coalition merged the Midwest Electric Vehicle Charging Infrastructure Collaboration and the Electric Highway Coalition, which individual utilities joined throughout 2021.

Figure 10. Most Active States of Q4 2021

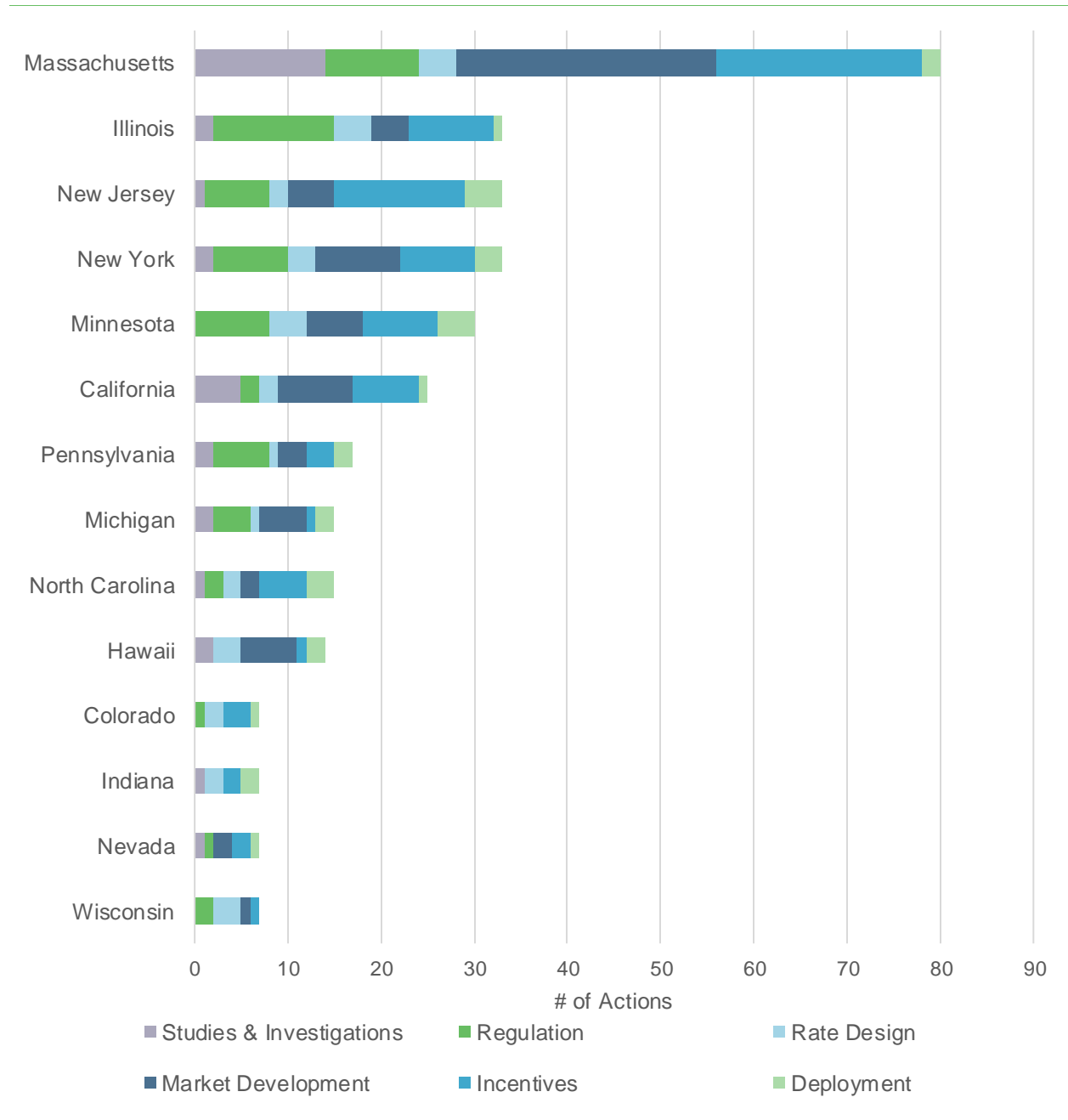
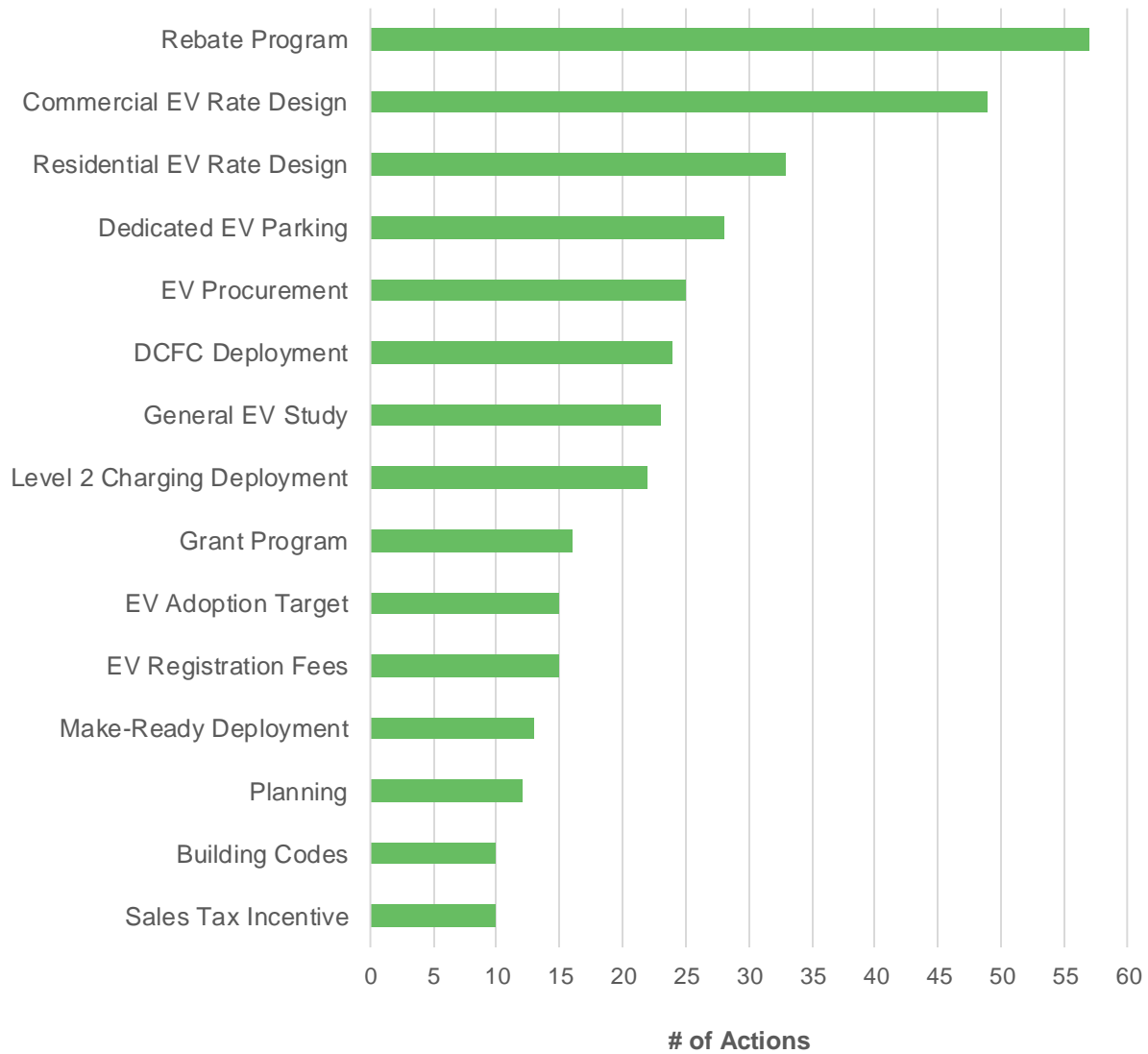


Figure 11. Top Electric Vehicle Actions of Q4 2021



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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