

50 STATES OF ELECTRIC VEHICLES

Q1 2018 Quarterly Report

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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- 2017 Annual Review: [Full Report](#) | [Executive Summary](#)

In addition to *The 50 States of Electric Vehicles*, the NC Clean Energy Technology Center publishes additional quarterly reports called *The 50 States of Solar* and *The 50 States of Grid Modernization*. Previous editions of these reports are available for download at www.nccleantech.ncsu.edu/the-50-states-reports/.

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 utilities designing rates to influence charging behavior of electric vehicle owners?
- Where and how are states and utilities proposing deployment of 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

This report currently excludes actions taken by utilities that are not state-regulated, such as municipal utilities and electric cooperatives in many states. 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 electric vehicle charging; these types of actions are tracked in the 50 States of Grid Modernization report series.

EXECUTIVE SUMMARY

Q1 2018 ELECTRIC VEHICLE ACTION

In Q1 2018, 42 states plus DC took a total of 275 legislative and regulatory actions related to electric vehicles. Table 1 provides a summary of state and utility actions occurring during Q1 2018. Of the 275 actions catalogued, the most common were related to Regulation (85), followed by Financial Incentives (57), and Market Development (52).

Table 1. Q1 2018 Summary of Electric Vehicle Actions

Type of Action	# of Actions	% by Type	# of States
Regulation	85	31%	36
Financial Incentives	57	21%	22 + DC
Market Development	52	19%	17
Studies and Investigations	32	12%	21 + DC
Deployment	25	9%	17 + DC
Rate Design	24	9%	16 + DC
Total	275	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 Q1 2018

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

Hawaii Utilities Publish Electrification of Transportation Strategic Roadmap

The Hawaiian Electric Companies published their Transportation Electrification Roadmap in March 2018, which includes 10 major initiatives. These initiatives include education, utility fleet electrification, vehicle cost reduction, opportunities for smart charging and provision of grid services, bus electrification, medium- and heavy-duty vehicle electrification, and expansion of charging availability at multi-unit buildings, workplaces, and public locations.

California Regulators Approve Utility Electric Vehicle Programs and Investments

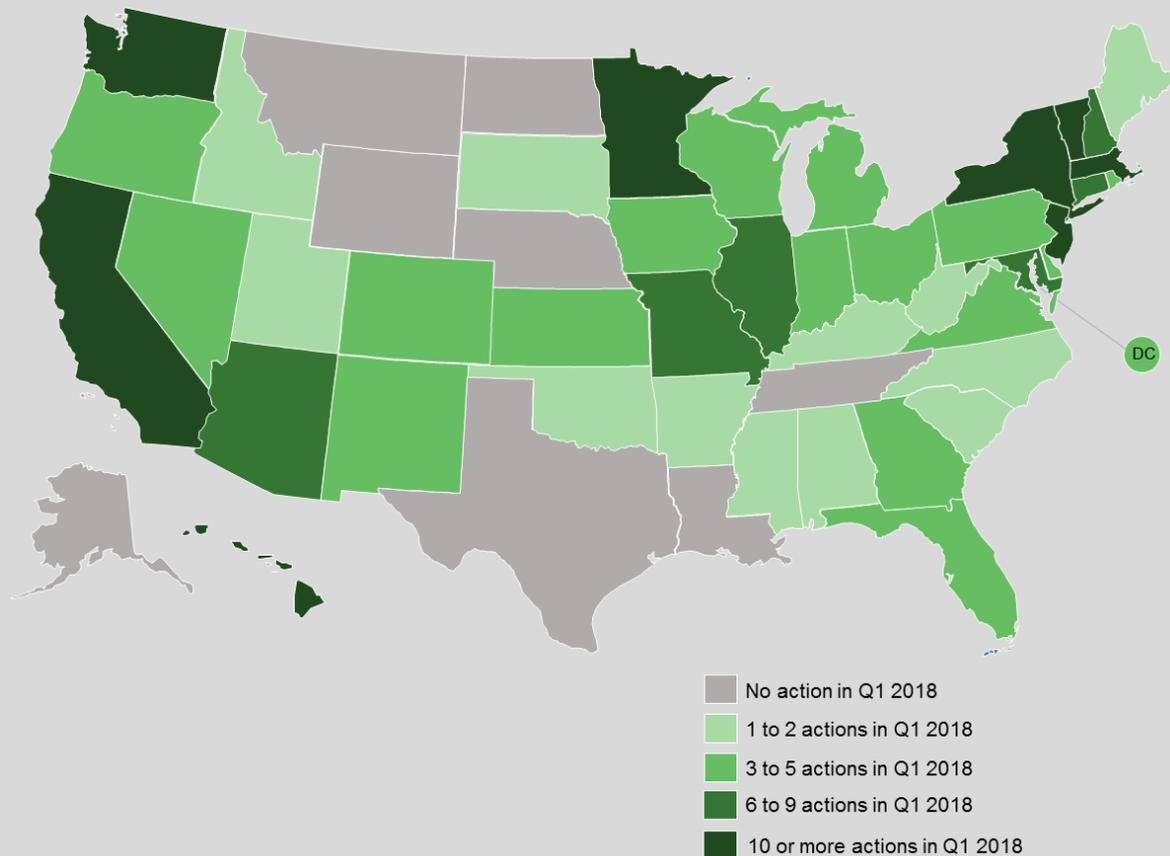
The California Public Utilities Commission issued an order in January 2018, approving a variety of electric vehicle programs and investments proposed by the state's three major investor-owned utilities. These programs comprised the utilities' Priority Review Projects and include new rate structures, incentive programs, and infrastructure deployment. The Commission also

issued a proposed decision in Q1 2018 that would approve the utilities' Standard Review Projects.

Maryland Working Group Proposes Statewide Electric Vehicle Portfolio

A working group on electric vehicles, formed as part of Maryland's grid modernization proceeding, filed its proposal for a statewide electric vehicle portfolio in January 2018. The portfolio would include a variety of new rate structures, incentive programs, and demonstration projects. The Public Service Commission opened a new docket in February 2018 to consider the proposal.

Figure 1. Q1 2018 Legislative and Regulatory Action on Electric Vehicles



Missouri Utilities Propose New Electric Vehicle Charging Programs

Three Missouri utilities proposed new electric vehicle programs during Q1 2018. Ameren proposed an incentive program for third-party charging infrastructure, while Kansas City Power & Light (KCP&L) and KCP&L Greater Missouri Operations asked the Commission to

reconsider cost recovery for their utility-owned charging network and proposed a new rate tariff for these utility-owned charging stations.

Pennsylvania Regulators Issue Electric Vehicle Charging Policy Statement

In March 2018, the Pennsylvania Public Utilities Commission voted to advance a policy statement clarifying that third-party electric vehicle charging does not constitute a resale of electricity. The Commission emphasized a need for greater clarity and consistency on this issue in the state. The proposed policy statement was published in May 2018 and requires electric distribution companies to expressly address electric vehicle charging in their tariffs.

Figure 2. Most Active States of Q1 2018

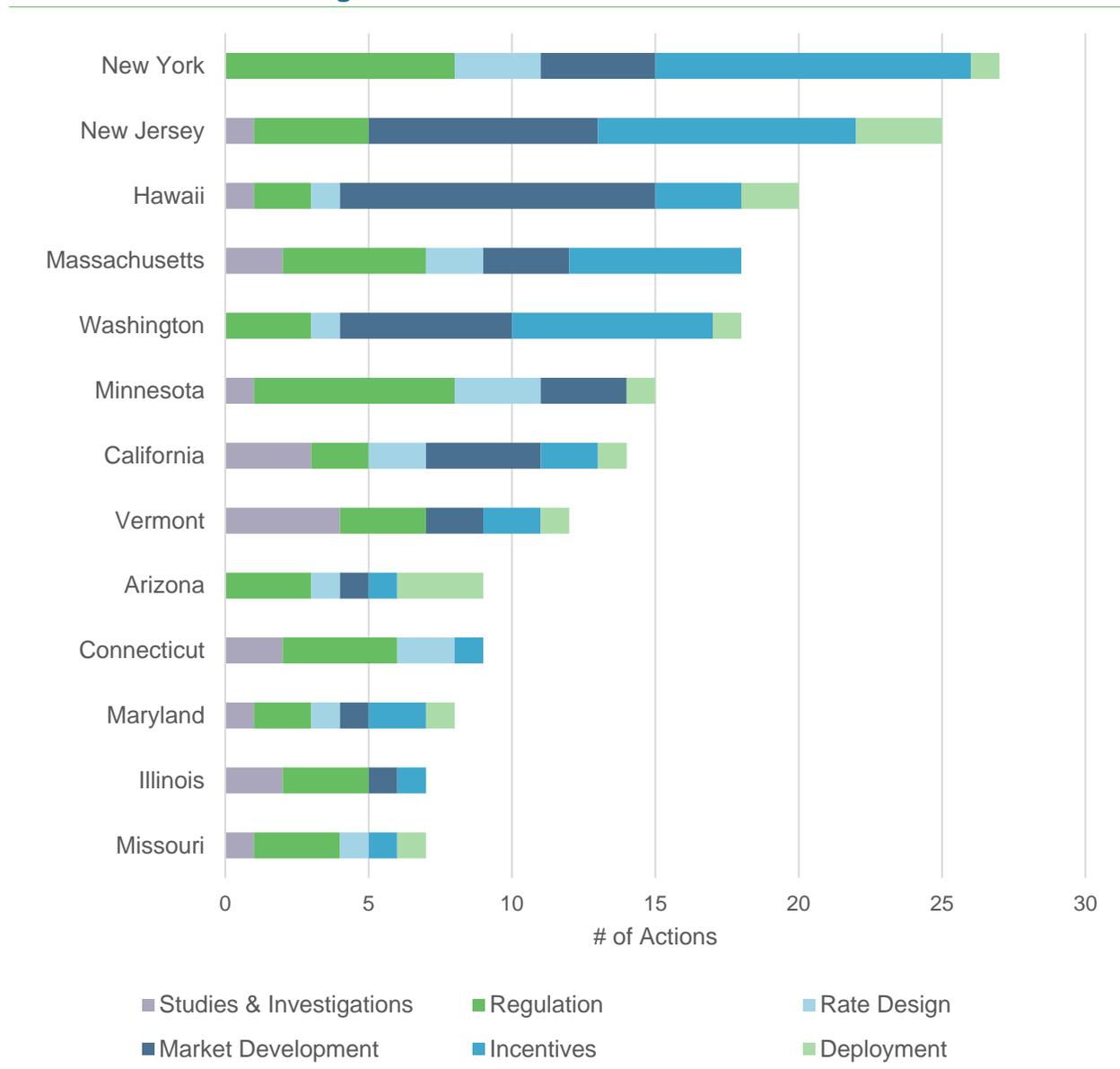
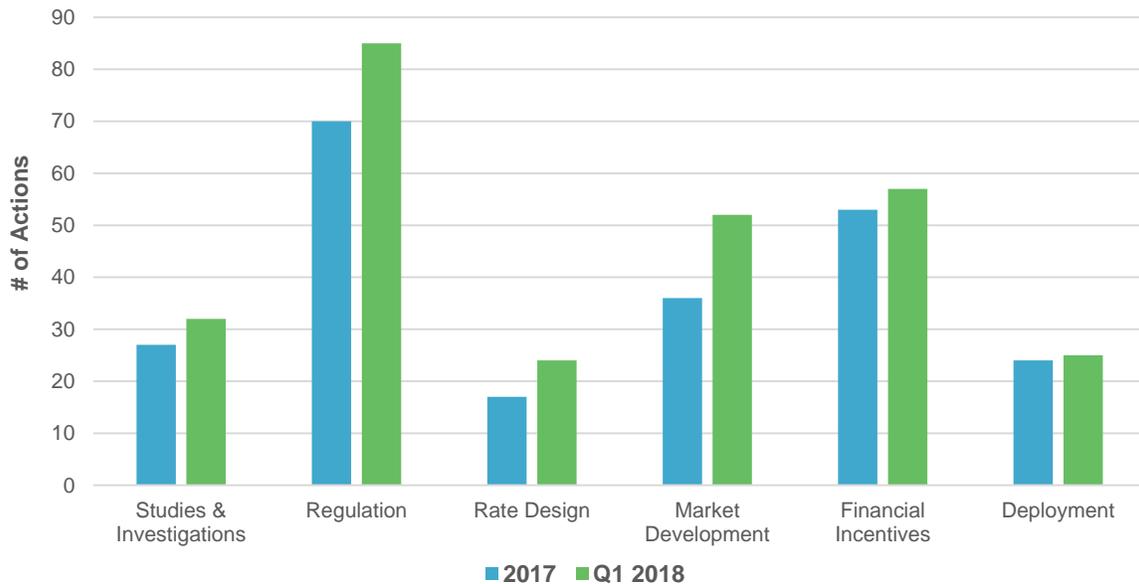


Figure 3. Action by Category, 2017 vs. Q1 2018



TOP ELECTRIC VEHICLE POLICY TRENDS OF Q1 2018

States Considering Multi-Faceted Electric Vehicle Plans

States and utilities are putting forward multi-faceted approaches to electric vehicles and related infrastructure. Broad plans were put forward in both Maryland and Hawaii in Q1 2018, which include a variety of rate design strategies, incentive programs, education and outreach efforts, and infrastructure deployment plans. California regulators considered similarly broad plans from the state's investor-owned utilities in Q1 2018, while legislators in multiple states, including Massachusetts and Vermont, introduced bills addressing electric vehicles and charging infrastructure in a variety of ways.

Contention Around Utility Ownership of Electric Vehicle Charging Infrastructure

Utility ownership of electric vehicle charging infrastructure is proving to be one of the most contentious issues related to electric vehicles. Last year, Missouri regulators determined that utilities may not own charging infrastructure in the state – a ruling which is currently being reviewed by the Missouri Court of Appeals. However, Kansas City Power & Light asked the Public Service Commission to reconsider this decision in its latest general rate case and grant cost recovery for its charging network. Proposed legislation in other states would allow utility cost recovery for charging infrastructure, and the Public Utilities Commission of Nevada authorized utilities to own and operate charging infrastructure with regulations approved in May 2018.

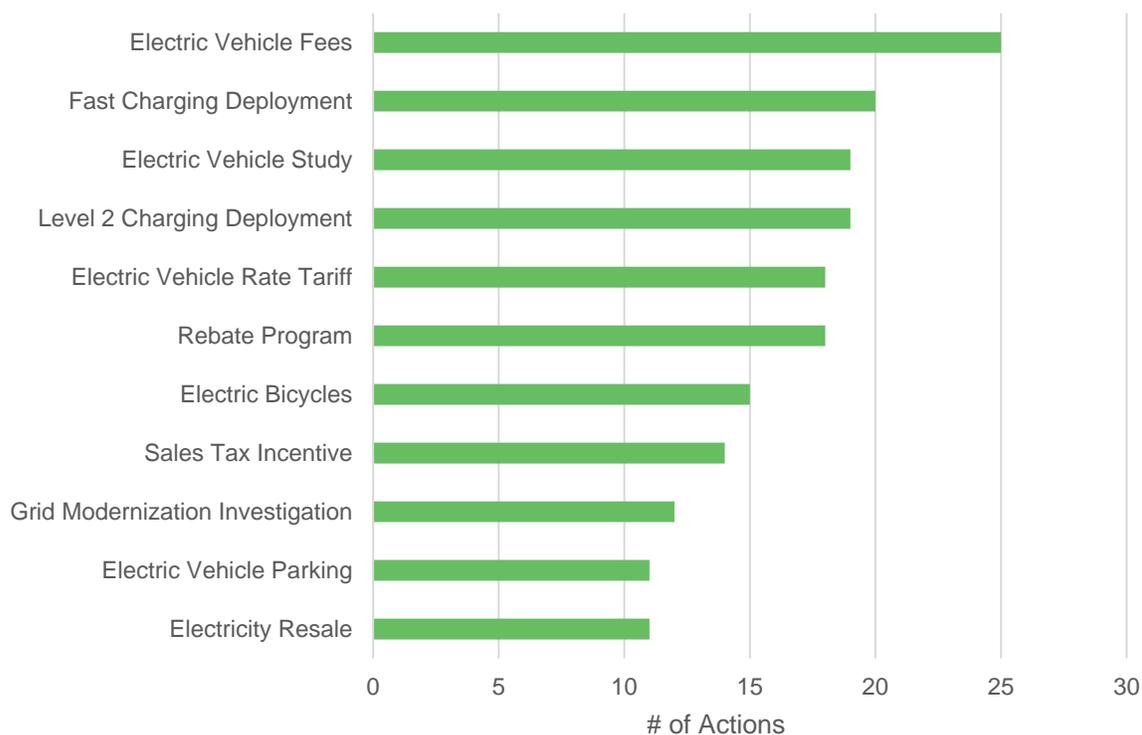
Considering the Role of Demand Charges in Commercial Charging Rates

As demand charges are frequently included in commercial and industrial customer rate structures, these can often be a barrier to the development of public DC fast charging infrastructure. While this issue remains largely unaddressed across the country, states are beginning to examine the impact of demand charges on fast charger deployment and work with utilities to develop commercial charging rate structures that mitigate the impact of demand charges. The California Public Utilities Commission is addressing this issue as part of Southern California Edison's proposed standard review projects, and a bill under consideration in Massachusetts directs utilities to file pilot commercial rate tariffs for electric vehicle charging with alternatives to traditional demand charges.

Piloting Co-Location of Energy Storage and Electric Vehicle Charging Stations

An emerging area of interest among states and utilities is the pairing of energy storage systems with electric vehicle charging stations in order to manage vehicle charging demand. In the Maryland electric vehicle working group's proposed portfolio plan, utilities would pursue demonstration projects pairing battery storage with vehicle charging stations. As part of San Diego Gas & Electric's priority review projects approved in January 2018, the utility plans to install a solar array and energy storage system at one location for shuttle charging.

Figure 4. Top Electric Vehicle Actions of Q1 2018



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
- Summary maps of action for each policy category above, including a separate Powerpoint file of all summary maps
- 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, saving weeks and thousands of dollars in staff time. At a cost of \$500 per issue (or \$1,600 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

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