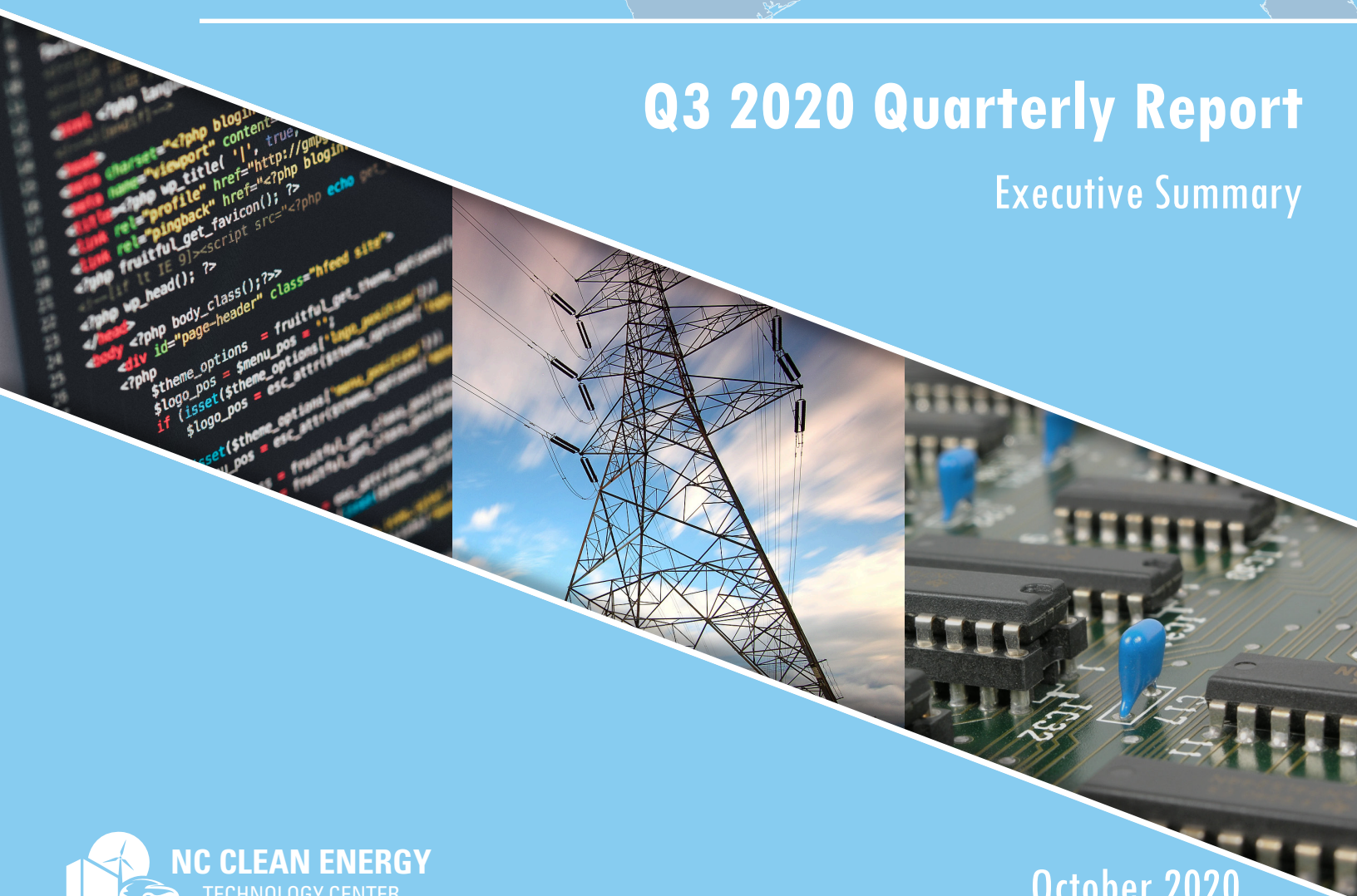


50 States of GRID MODERNIZATION

Q3 2020 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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PREFERRED CITATION

North Carolina Clean Energy Technology Center, *The 50 States of Grid Modernization: Q3 2020 Quarterly Report*, October 2020.

COVER DESIGN CREDIT

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The 50 States of Grid Modernization is a quarterly publication. Previous executive summaries and older full editions of *The 50 States of Grid Modernization* are available [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 Electric Vehicles*. These reports may be purchased at [here](#). Executive summaries and older editions of these reports are available for download [here](#).

ABOUT THE REPORT

WHAT IS GRID MODERNIZATION?

Grid modernization is a broad term, lacking a universally accepted definition. In this report, the authors use the term grid modernization broadly to refer to actions making the electricity system more resilient, responsive, and interactive. Specifically, in this report grid modernization includes legislative and regulatory actions addressing: (1) smart grid and advanced metering infrastructure, (2) utility business model reform, (3) regulatory reform, (4) utility rate reform, (5) energy storage, (6) microgrids, and (7) demand response.

PURPOSE

The purpose of this report is to provide state lawmakers and regulators, electric utilities, the advanced energy 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 grid modernization. This report catalogues proposed and enacted legislative, regulatory, and rate design changes affecting grid modernization during the most recent quarter.

The 50 States of Grid Modernization report series provides regular quarterly updates and annual summaries of grid modernization policy developments, keeping stakeholders informed and up to date.

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 industry stakeholders and regulators.

Questions Addressed

This report addresses several questions about the changing U.S. electric grid:

- How are states adjusting traditional utility planning processes to better allow for consideration of advanced grid technologies?
- What changes are being made to state regulations and wholesale market rules to allow market access for distributed energy resources?
- How are states and utilities reforming the traditional utility business model and rate designs?

- What policy actions are states taking to grow markets for energy storage and other advanced grid technologies?
- Where and how are states and utilities proposing and deploying advanced grid technologies, energy storage, microgrids, and demand response programs?

Actions Included

This report focuses on cataloguing and describing important proposed and adopted policy changes related to grid modernization and distributed energy resources, *excluding policies specifically intended to support only solar technologies*. While some areas of overlap exist, actions related to distributed solar policy and rate design are tracked separately in the *50 States of Solar report series*, and are generally not included in this report.

In general, this report considers an “action” to be a relevant (1) legislative bill that has been introduced or (2) a 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 energy storage, grid modernization, utility business model reform, or alternative rate designs, e.g., through a regulatory docket or a cost-benefit analysis.

Planning and Market Access

Changes to utility planning processes, including integrated resource planning, distribution system planning, and evaluation of non-wires alternatives, as well as changes to state and wholesale market regulations enabling market access.

Utility Business Model and Rate Reform

Proposed or adopted changes to utility regulation and rate design, including performance-based ratemaking, decoupling, time-varying rates, and residential demand charges.

Grid Modernization Policies

New state policy proposals or changes to existing policies related to grid modernization, including energy storage targets, energy storage compensation rules, interconnection standards, and customer data access policies.

Financial Incentives for Energy Storage and Advanced Grid Technologies

New statewide incentives or changes to existing incentives for energy storage, microgrids, and other modern grid technologies.

Deployment of Advanced Grid Technologies

Utility-initiated requests, as well as proposed legislation, to implement demand response programs or to deploy advanced metering infrastructure, smart grid technologies, microgrids, or energy storage.

Actions Excluded

This report excludes utility proposals for grid investments that do not include any specific grid modernization component, as outlined above, as well as specific projects that have already received legislative or regulatory approval. Actions related exclusively to pumped hydroelectric storage or electric vehicles are not covered by this report (a separate report series available from the NC Clean Energy Technology Center covers electric vehicle actions). Time-varying and residential demand charge proposals are only documented if they are being implemented statewide, the default option for all residential customers of an investor-owned utility, or a notable pilot program. Actions related to inclining or declining block rates are not included in this report. 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 changes to policies and rate design for distributed generation customers; these changes are covered in the 50 States of Solar quarterly report.

EXECUTIVE SUMMARY

Q3 2020 GRID MODERNIZATION ACTION

In the third quarter of 2020, 45 states plus DC took a total of 382 policy and deployment actions related to grid modernization, utility business model and rate reform, energy storage, microgrids, and demand response. Table 1 provides a summary of state and utility actions on these topics. Of the 382 actions catalogued, the most common were related to policies (89), deployment (83), and planning and market access (66).

Table 1. Q3 2020 Summary of Grid Modernization Actions

Type of Action	# of Actions	% by Type	# of States
Policies	89	23%	33 + DC
Deployment	83	22%	31
Planning and Market Access	66	17%	22 + DC
Business Model and Rate Reform	54	14%	27 + DC
Studies and Investigations	48	13%	20 + DC
Financial Incentives	42	11%	16
Total	382	100%	45 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 5 GRID MODERNIZATION DEVELOPMENTS OF Q3 2020

Five of the quarter’s top policy developments are highlighted below.

Maryland Public Service Commission Authorizes Multi-Year Rate Plans and Performance Incentive Mechanisms

The Maryland Public Service Commission issued a decision in September 2020, authorizing, but not requiring, utilities to file multi-year rate plans. The order also authorizes utilities to propose performance incentive mechanisms that support recognized state policy goals that go beyond historic baseline standards. The Commission plans to initiate a rulemaking on performance incentive mechanisms once it has greater information and experience.

Massachusetts Regulators Open Phase II Grid Modernization Investigation

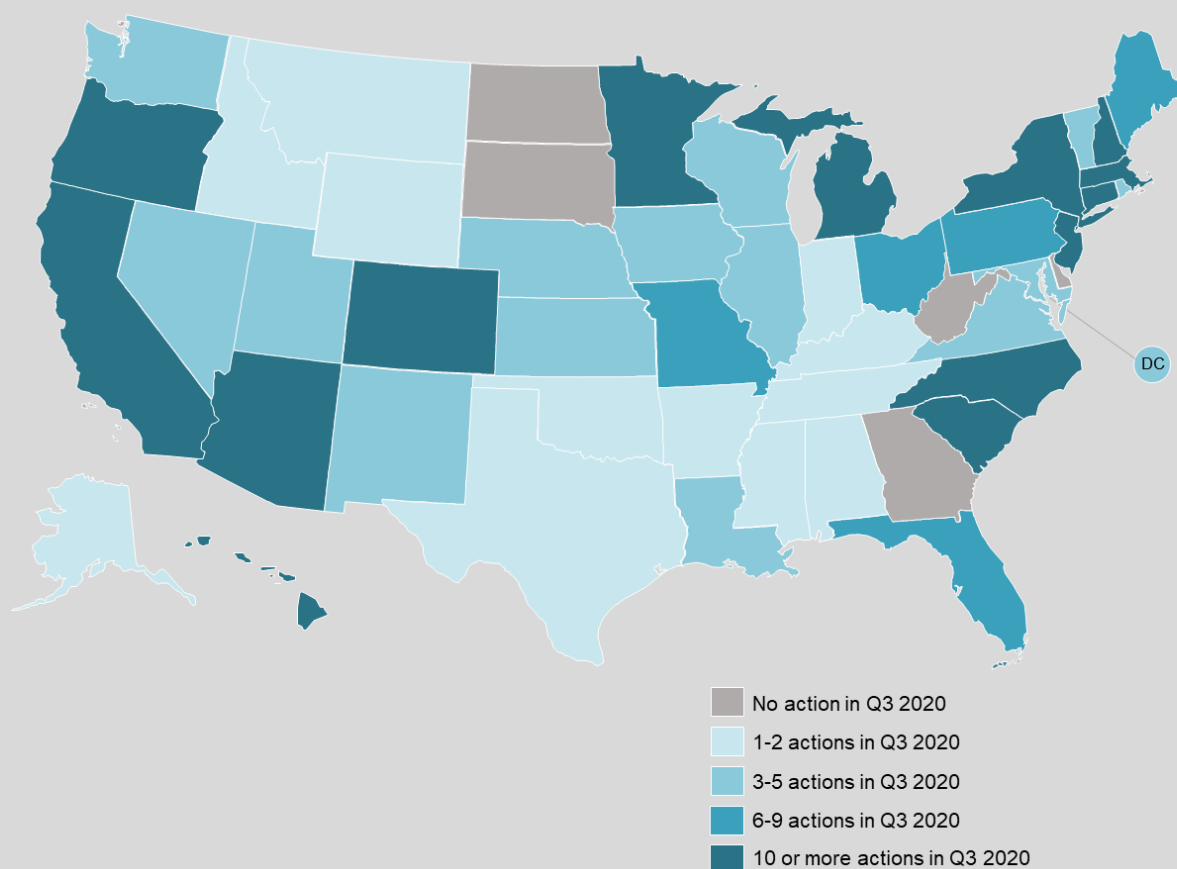
In July 2020, Massachusetts regulators opened a new proceeding for Phase II of its investigation into electric grid modernization. The investigation is currently focusing on

advanced metering functionality and time-varying rate design options for electric vehicle customers, as well as the current status of utility metering and billing systems and meter replacement strategies.

Connecticut and New Jersey Utilities File Advanced Metering Infrastructure Proposals

Eversource and United Illuminating in Connecticut, as well as Atlantic City Electric and Jersey Central Power & Light in New Jersey, filed advanced metering infrastructure (AMI) deployment proposals during Q3 2020. Each utility plans to deploy AMI throughout its service territory. Eversource’s proposal also includes a data privacy and customer engagement plan, and United Illuminating’s proposal includes a pilot to identify high-potential energy savings opportunities leveraging AMI interval data.

Figure 1. Q3 2020 State and Utility Action on Grid Modernization



South Carolina Lawmakers Initiate Electricity Market Reform Study

In September 2020, the South Carolina Legislature enacted a bill establishing an Electricity Market Reform Measures Study Committee and directing the committee to prepare a study examining several different market reform options, such as creating a South Carolina Regional

Transmission Organization (RTO), joining an existing RTO, implementing an energy imbalance market, and authorizing community choice aggregation.

New York Public Service Commission Approves Demand Response Program Rules

The New York Public Service Commission approved demand response program rules in September 2020 that implement two new dynamic load management program options. These options will provide incentives to participants for at least three years and will allow energy storage resources to participate in these programs. The new program rules are intended to help utilities meet the state's energy storage target.

MOST ACTIVE STATES AND SUBTOPICS OF Q3 2020

The most common types of actions across the country related to energy storage deployment (53), distribution system planning (27), smart grid deployment (25), utility business model reforms (24), AMI deployment (23), and data access policies (23). In Q3 2020, grid modernization activity decreased in all categories except deployment, due to most state legislatures adjourning earlier in the year.

The states taking the greatest number of actions related to grid modernization in Q3 2020 can be seen in Figure 4. New York, California, New Jersey, Hawaii, and Massachusetts saw the most action during the quarter, followed by Connecticut, Michigan, and North Carolina. Overall, 45 states, plus DC, took actions related to grid modernization in Q3 2020.

TOP GRID MODERNIZATION TRENDS OF Q3 2020

Utilities Proposing Customer Demand Response Incentive Programs

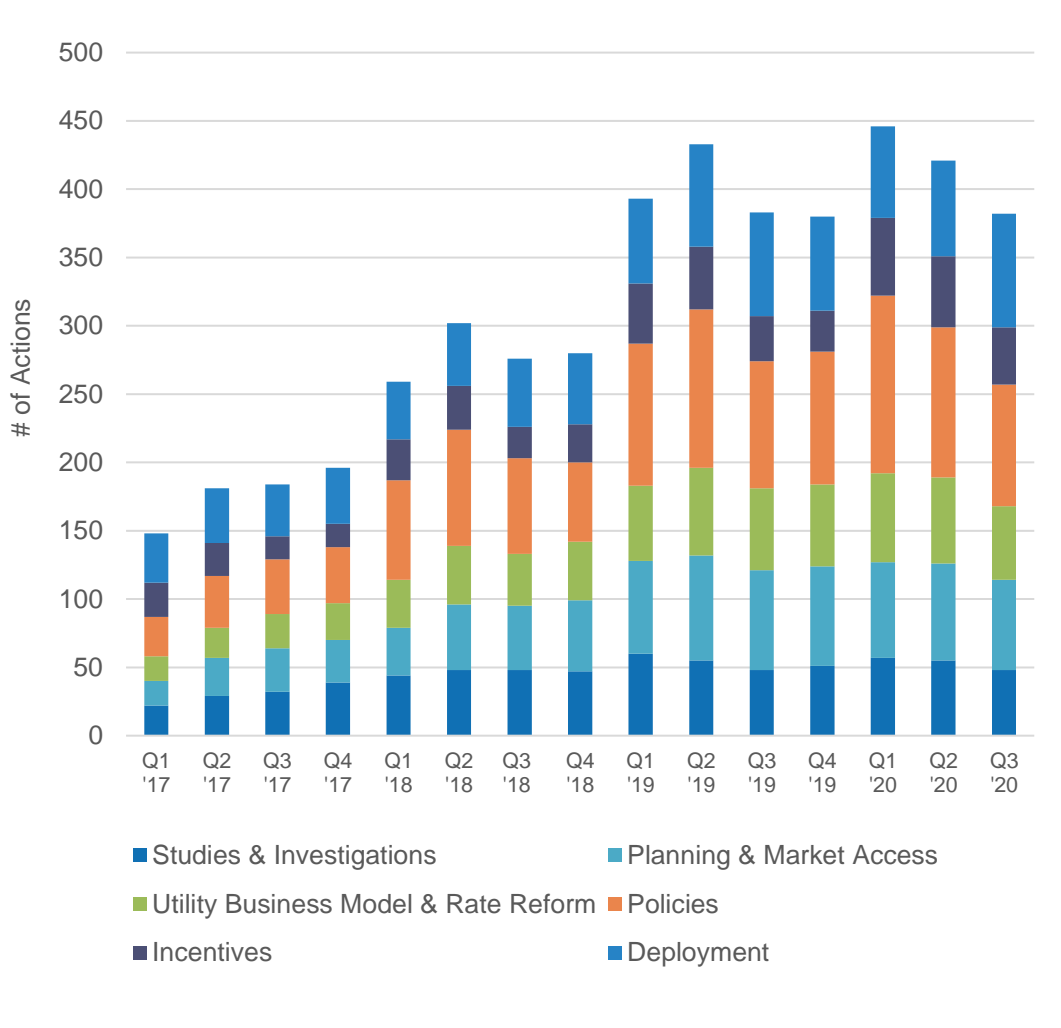
A growing number of utilities are proposing demand response incentive programs utilizing smart thermostats or battery storage systems. Duke Energy Florida proposed the use of controlled thermostats to reduce peak demand and respond to emergency peak events, in exchange for a \$50 prepaid credit card. Also in Florida, regulators approved Tampa Electric's proposed smart thermostat programs, which provide rebates to residential and commercial customers. Madison Gas & Electric requested approval for a Bring Your Own Device smart thermostat program in Wisconsin, including upfront and annual incentives in exchange for allowing the utility to control the thermostat during peak events. In Utah, Rocky Mountain Power also proposed a new demand response incentive program using customer-owned battery storage systems for grid management.

States Studying Specific Elements of Grid Modernization

While numerous states have undertaken broad investigations covering many different aspects of grid modernization in recent years, several of these proceedings have since concluded, with

states now focusing on studying specific elements of grid modernization. The New Hampshire Public Utilities Commission will be studying ways to enable storage projects to receive compensation for avoided transmission and distribution costs, and a South Carolina study committee will be specifically examining electricity market reform measures. The Connecticut Public Utilities Regulatory Authority has several proceedings related to grid modernization open, which are considering specific topics like energy storage, non-wires alternatives, resilience, and advanced metering infrastructure. Maryland's broad grid modernization proceeding has also led to several specific rulemakings, working groups, and program proposals related to energy storage, data access, and interconnection.

Figure 2. Total Number of Grid Modernization Actions by Quarter



Regulators Establishing Terms for Energy Storage Qualifying Facilities

Regulators in some states have been considering the treatment of energy storage qualifying facilities or facilities paired with energy storage under the Public Utility Regulatory Policies Act (PURPA). In August 2020, the South Carolina Public Service Commission approved Dominion Energy's tariff for storage qualifying facilities. The tariff, which will be available to battery

storage projects of at least 5 MW, includes compensation for capacity and energy shifting. The Idaho Public Service Commission recently issued a decision establishing a separate category for energy storage qualifying facilities, with projects up to 100 kW eligible for 20-year contracts and projects over 100 kW eligible for 2-year contracts. The Commission also established methods for calculating avoided energy and avoided capacity rates for both categories of storage projects. North Carolina regulators have also been examining treatment of energy storage resources under PURPA.

Figure 3. Most Common Types of Actions Taken in Q3 2020

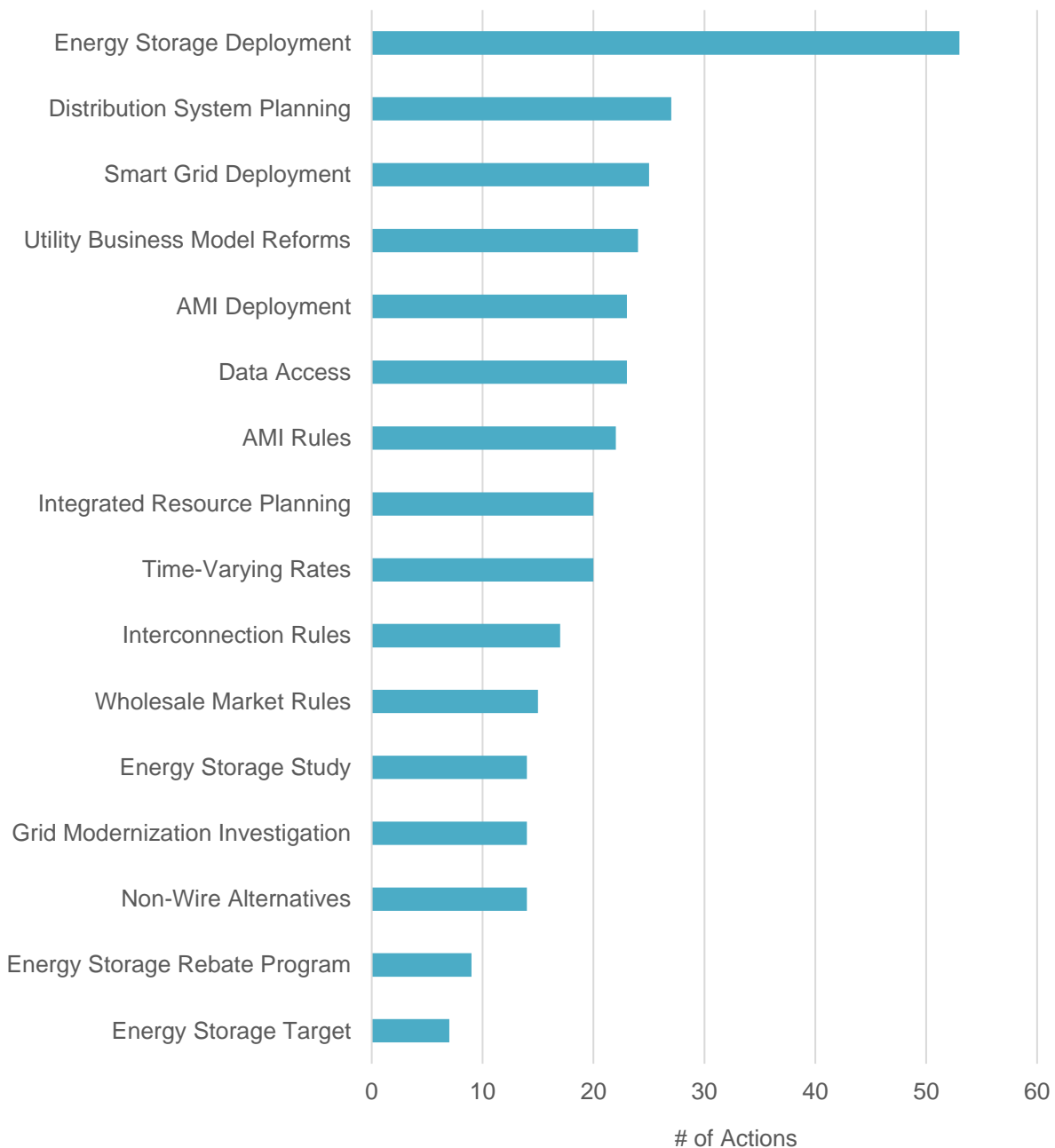


Figure 4. Most Active States of Q3 2020

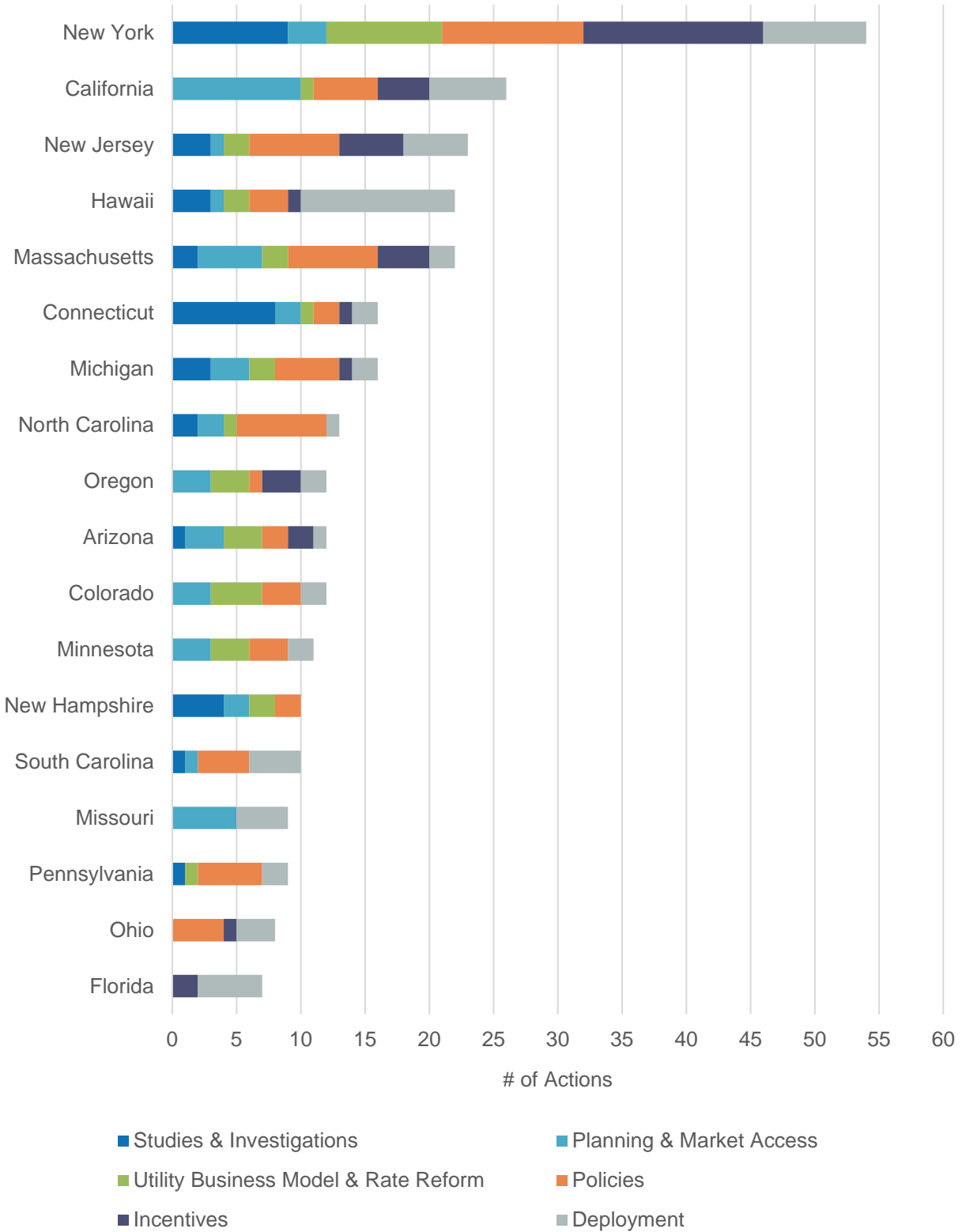
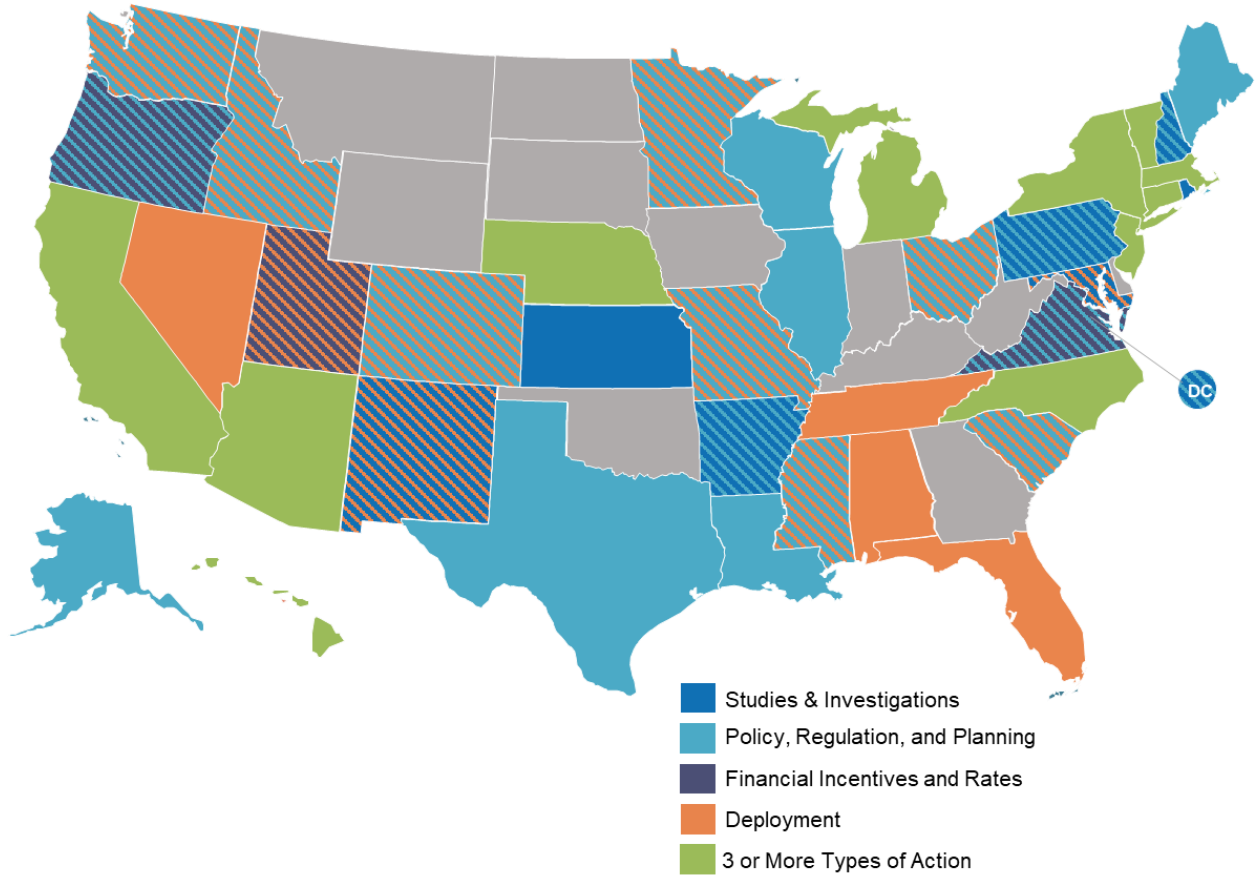


Figure 5. Q3 2020 Energy Storage Action, by Action Type



FULL REPORT DETAILS & PRICING

FULL REPORT DETAILS

Content Included in the Full Quarterly Report:

- Detailed tables describing each pending and recently decided state and utility grid modernization action addressing: (1) smart grid and advanced metering infrastructure, (2) utility business model reform, (3) regulatory reform, (4) utility rate reform, (5) energy storage, (6) microgrids, and (7) demand response. Actions are broken out into the following categories:
 - Studies and Investigations
 - Planning and Market Access
 - Utility Business Model and Rate Reforms
 - Policies
 - 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 grid modernization policy action and trends
- Outlook of action for the next quarter

WHO SHOULD PURCHASE THIS REPORT

The 50 States of Grid Modernization allows those involved in the electric industry 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 Grid Modernization offers a significant time and financial savings. With direct links to original sources for all actions, customers may stay on top of policy developments between quarterly reports.

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- Identify new investment opportunities and emerging areas of growth, as well as risky investments
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- Learn about the outcomes of other states' policy decisions
- 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 grid modernization proceedings
- Cite an objective source in your own research and analysis

PRICING

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