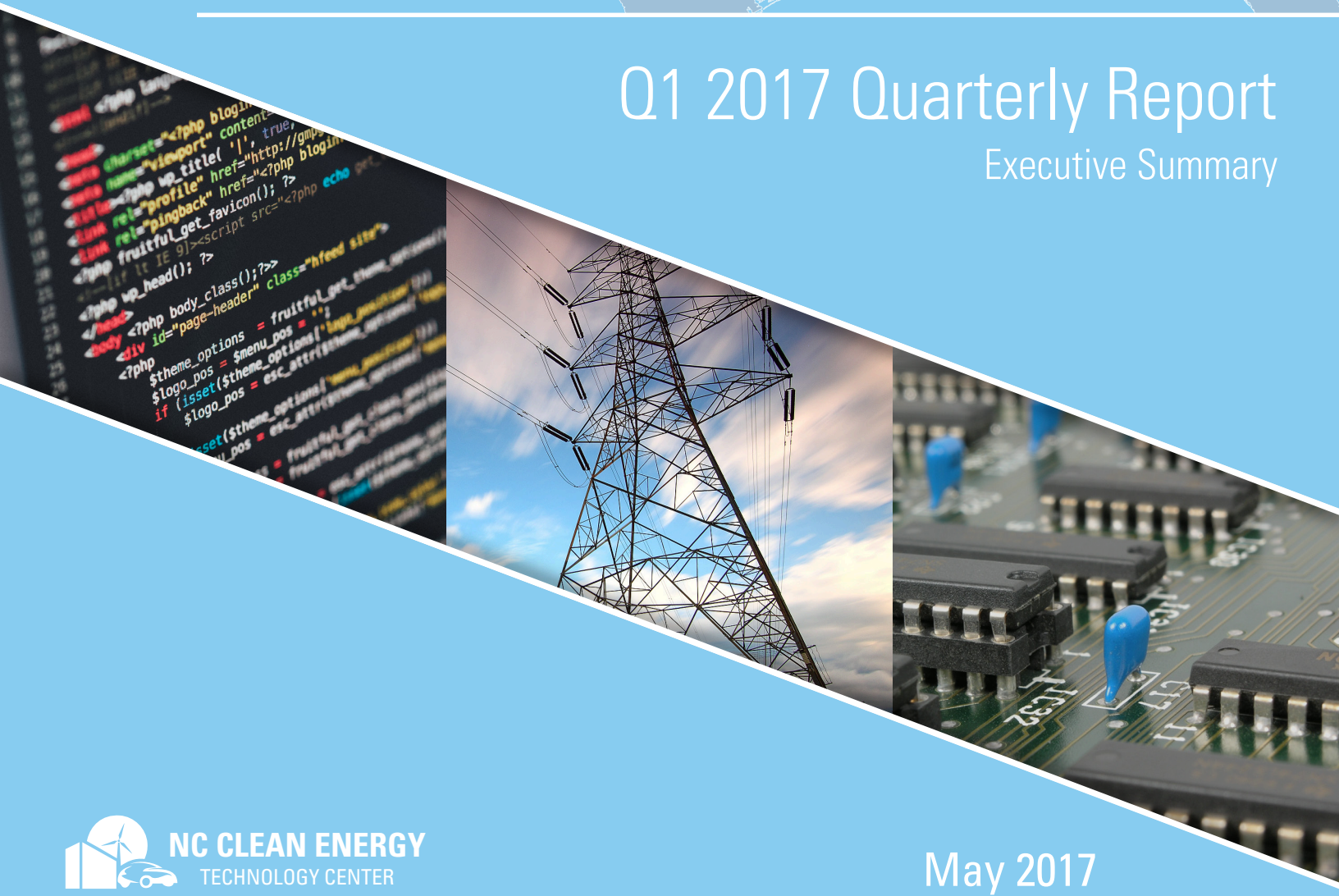
50 States of GRID MODERNIZATION

Q1 2017 Quarterly Report

Executive Summary



NC CLEAN ENERGY TECHNOLOGY CENTER

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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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COVER DESIGN CREDIT

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DISCLAIMER

OTHER 50 STATES REPORTS

In addition to *The 50 States of Grid Modernization*, the NC Clean Energy Technology Center publishes a quarterly report called *The 50 States of Solar*. Previous editions of *The 50 States of Solar* are available for download at www.nccleantech.ncsu.edu or by clicking here:

- Q1 2017 Executive Summary
- Q4 2016 and 2016 Policy Review – Executive Summary
- Q3 2016 Executive Summary
- Q2 2016 Executive Summary
- Q1 2016
- Q4 2015 and 2015 Policy Review
- Q3 2015
- Q2 2015
- Q1 2015
- Q4 2014

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 is intended to be inclusive of the following topics: (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 on 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 provides regular quarterly updates 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 communication with stakeholders and regulators in the industry.

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 are states and utilities proposing deployment of 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 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* 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.

Time-varying rate 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 intended to soon become a default option. Actions related to inclining or declining block rates are not included in this report.

Grid Modernization Policies

New state policy proposals or changes to existing policies related to grid modernization, including energy storage targets, clean peak standards, and energy storage compensation policies.

Financial Incentives for Energy Storage and Advanced Grid Technologies

New statewide incentives or changes to existing incentives for energy storage, microgrids, and other advanced 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 without a modernization component, as outlined above, as well as 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. While actions taken by municipal utilities and electric cooperatives are not comprehensively tracked in this report, particularly noteworthy or high-impact actions will be covered. 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

Q1 2017 GRID MODERNIZATION ACTION

In the first quarter of 2017, 37 states plus DC took a total of 148 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 148 actions catalogued, the most common were related to deployment (36), followed by policies (29), and financial incentives (25).

Table 1. Q1 2017 Summary of Grid Modernization Actions

Type of Action	# of Actions	% by Type	# of States
Deployment	36	24%	19
Policies	29	20%	16
Financial Incentives	25	17%	11
Studies and Investigations	22	15%	16 + DC
Business Model and Rate Reform	18	12%	13
Planning and Market Access	18	12%	12
Total	**148**	**100%**	**37 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 Q1 2017

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

Maryland Legislature Advances State Tax Credit for Energy Storage

The Maryland State Senate passed a bill adopting a state tax credit for energy storage systems in March 2017, which the State House later passed in early April and the Governor signed into law in May. The credit would be equal to 25% of installed costs, up to $5,000 for residential systems and $500,000 for commercial systems.

Illinois and Ohio Launch Grid Modernization Proceedings

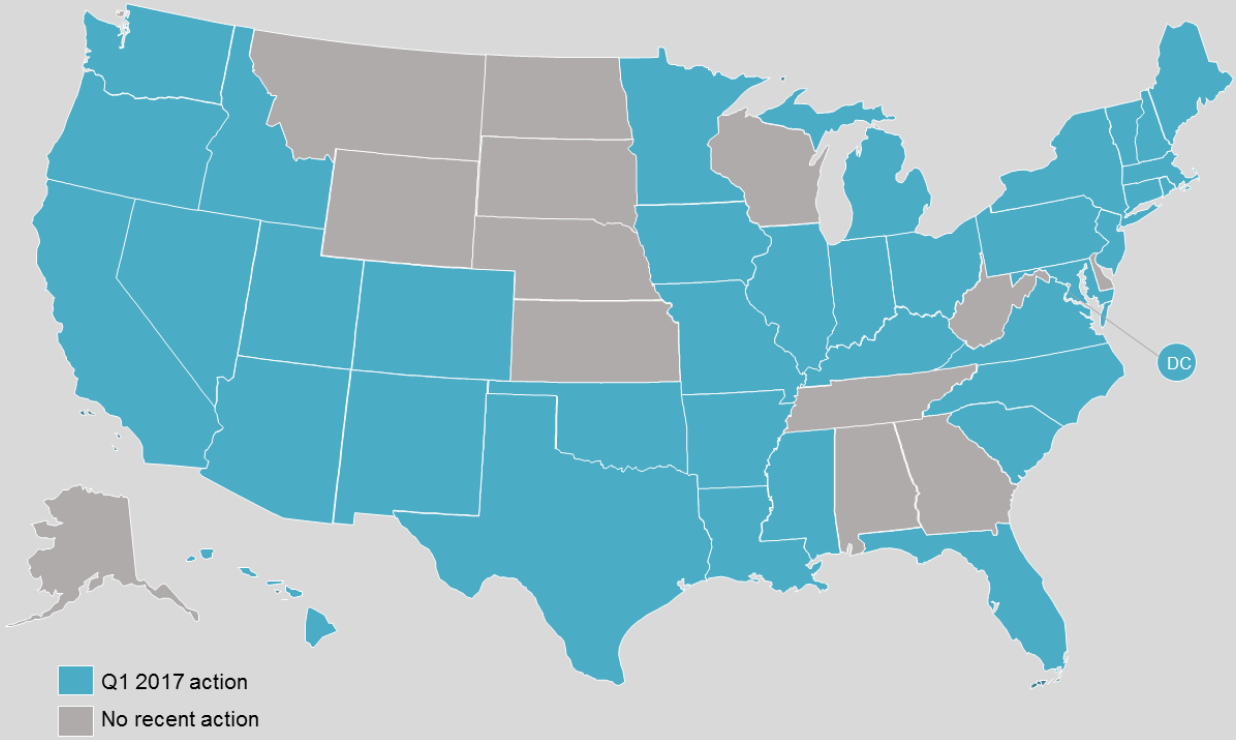
In March 2017, the Illinois Commerce Commission initiated a grid modernization proceeding – called NextGrid – aimed at creating a 21st century regulatory model that supports innovation, empowers customers and communities, drives economic development, and optimizes the electric utility industry. The Public Utilities Commission of Ohio also launched a grid

modernization proceeding, called PowerForward, in March 2017. PowerForward is aimed at charting a path forward for grid modernization projects and innovative regulations to improve the consumer experience.

New Hampshire Completes Multi-Year Grid Modernization Investigation

In March 2017, New Hampshire's Grid Modernization Working Group submitted its final report to the Public Utilities Commission. The report includes many areas of consensus among stakeholders, as well as distinct stakeholder viewpoints on areas of non-consensus. The proceeding covered distribution system planning, advanced metering functionality, rate design, customer data and education, and utility cost recovery and financial incentives.

Figure 1. Q1 2017 Legislative and Regulatory Action on Grid Modernization



Washington Commission Issues Draft Policy Statement on Energy Storage in Integrated Resource Planning

Washington's Utilities and Transportation Commission issued a draft policy statement on the role of energy storage in the integrated resource planning process in March 2017. In the statement, the Commission noted that utilities will be required to fully evaluate the costs and benefits of energy storage as an alternative to new resource investments, and the state will move forward with a transition to sub-hourly modeling.

New York Public Service Commission Issues Monumental Order on DER Compensation

The New York Public Service Commission issued an order in its Value of Distributed Energy Resources (VDER) proceeding in March 2017, which includes examination of compensation for behind-the-meter energy storage systems that are paired with renewable generation. While these systems will not be compensated through the VDER tariff yet, the intent is for new installations at some point to be compensated with a value-based approach.

MOST ACTIVE STATES AND SUBTOPICS OF Q1 2017

The ten states taking the greatest number of actions related to grid modernization in Q1 2017 can be seen in Figure 2. New York and Hawaii saw the most action during the quarter with 17 and 16 actions, respectively. The most common types of actions across the country were advanced metering infrastructure deployment (19 actions), smart grid deployment (13), and time-varying rates for residential customers (10).

Figure 2. Top Ten Most Active States of Q1 2017