

50 States of GRID MODERNIZATION

Q3 2017 Quarterly Report
Executive Summary

AUTHORS

Autumn Proudlove
Brian Lips
David Sarkisian
Achyut Shrestha

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.

CONTACT

Autumn Proudlove (afproudl@ncsu.edu)

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Previous editions of *The 50 States of Grid Modernization* are available for download at www.nccleantech.ncsu.edu/the-50-states-reports/ or by clicking here:

- Q2 2017: [Full Report](#) | [Executive Summary](#)
- Q1 2017: [Full Report](#) | [Executive Summary](#)

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- [Q3 2017 Executive Summary](#)
- [Q2 2017 Executive Summary](#)
- [Q1 2017 Executive Summary](#)
- [Q4 2016 and 2016 Policy Review – Executive Summary](#)
- [Q3 2016 Executive Summary](#)
- [Q2 2016](#)
- [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 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 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 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 and how 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 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.

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, 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 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 that do not include any specific grid 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

Q3 2017 GRID MODERNIZATION ACTION

In the third quarter of 2017, 33 states plus DC took a total of 184 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 184 actions catalogued, the most common were related to policies (40), followed by deployment (38), studies and investigations (32), and planning and market access (32).

Table 1. Q3 2017 Summary of Grid Modernization Actions

| Type of Action | # of Actions | % by Type | # of States |
|--------------------------------|--------------|-------------|-----------------------|
| Policies | 40 | 22% | 20 |
| Deployment | 38 | 21% | 21 |
| Studies and Investigations | 32 | 17% | 19 + DC |
| Planning and Market Access | 32 | 17% | 15 (+ 4 RTOs) |
| Business Model and Rate Reform | 25 | 14% | 12 + DC |
| Financial Incentives | 17 | 9% | 7 |
| Total | 184 | 100% | 33 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 2017

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

Washington and New Mexico Adopt Amendments to Statewide IRP Rules

In Q3 2017, both [Washington](#) and [New Mexico](#) adopted amendments to their statewide integrated resource planning rules, now requiring utilities to fully evaluate energy storage alongside other resource options. Similar requirements for [Arizona Public Service](#) and [Entergy New Orleans](#) were also approved during the quarter.

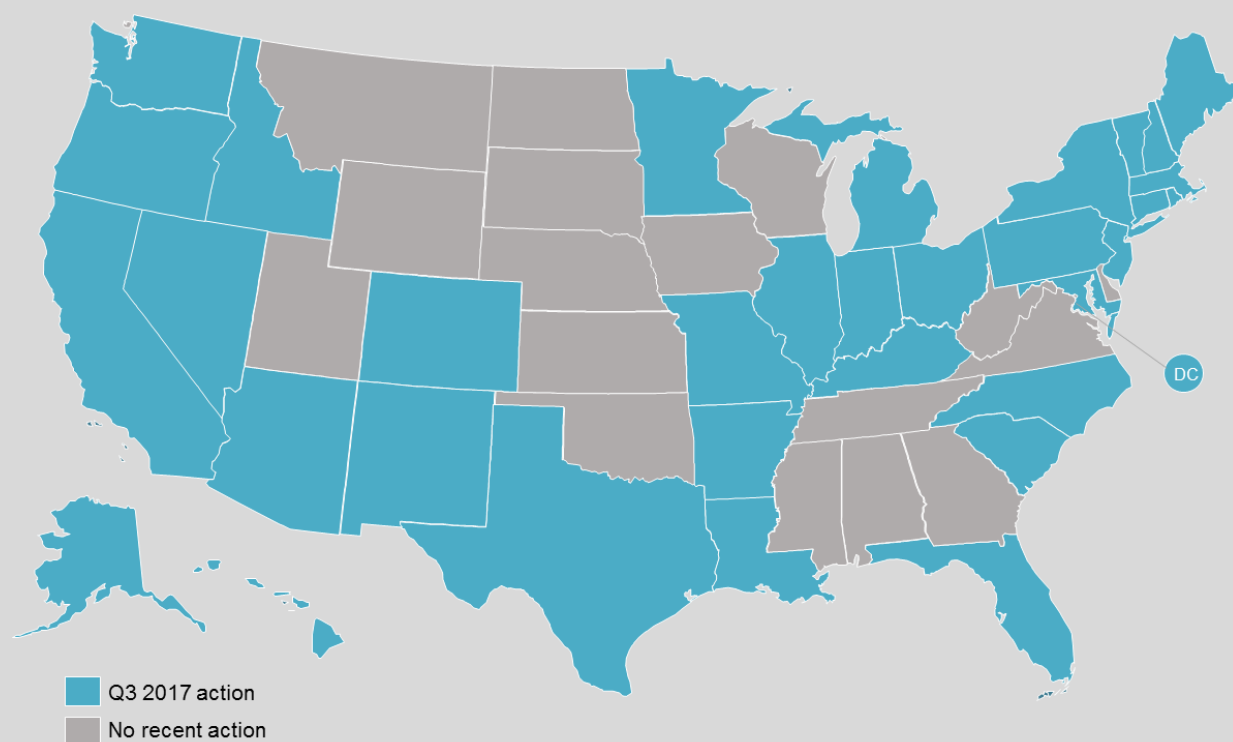
Oregon Initiates Investigation into Grid Modernization and Utility Business Models

A [bill](#) directing the Oregon Public Utility Commission to investigate the impact of developing industry trends, technologies, and policy drivers on the existing regulatory system and utility incentives was passed and signed into law in Q3 2017. The legislation calls out many specific issues across a wide range of energy topics to be examined.

Proposed Decision Allows AEP Texas North to Own Battery Storage

AEP Texas North Company [proposed the deployment](#) of two battery storage projects to defer transmission and distribution investments in September 2016. In Q3 2017, the ALJ issued a [proposal for decision](#), which would approve the projects – a notable outcome in a state where utilities are not permitted to own generation assets. The proposal will be considered by the Commission in December.

Figure 1. Q3 2017 Legislative and Regulatory Action on Grid Modernization



California Enacts Bill to Evaluate Clean Options to Meet Peak Demand

The California legislature enacted a [bill](#) requiring utilities to consider the role of DERs and energy storage to meet peak demand needs as part of their integrated resource planning processes. Specifically, the bill notes that existing renewables, grid operational efficiencies, energy storage, and DERs (including efficiency) should be evaluated.

Connecticut Department of Energy & Environmental Protection Recommends Expansive Grid Modernization Proceeding

As part of the Connecticut Department of Energy and Environmental Protection's July 2017 [draft Comprehensive Energy Strategy](#), the Department recommended that the state's Public

Utilities Regulatory Authority open a generic proceeding covering grid modernization and utility business models. The Department specifically mentioned non-wires alternatives, time-varying rates and dynamic pricing, and energy storage as key topics to address.

MOST ACTIVE STATES AND SUBTOPICS OF Q3 2017

The most common types of actions across the country related to technology deployment during Q3 2017 – advanced metering infrastructure (17 actions), smart grid (15), and energy storage (14). These were followed by broad grid modernization investigations, advanced metering infrastructure rules, distribution system and grid modernization planning, and time-varying rates.

The states taking the greatest number of actions related to grid modernization in Q3 2017 can be seen in Figure 3. New York, Massachusetts, and California continued to see the most action during the quarter, followed by Arizona, Hawaii, and Michigan.

Figure 2. Most Common Types of Actions Taken in Q3 2017

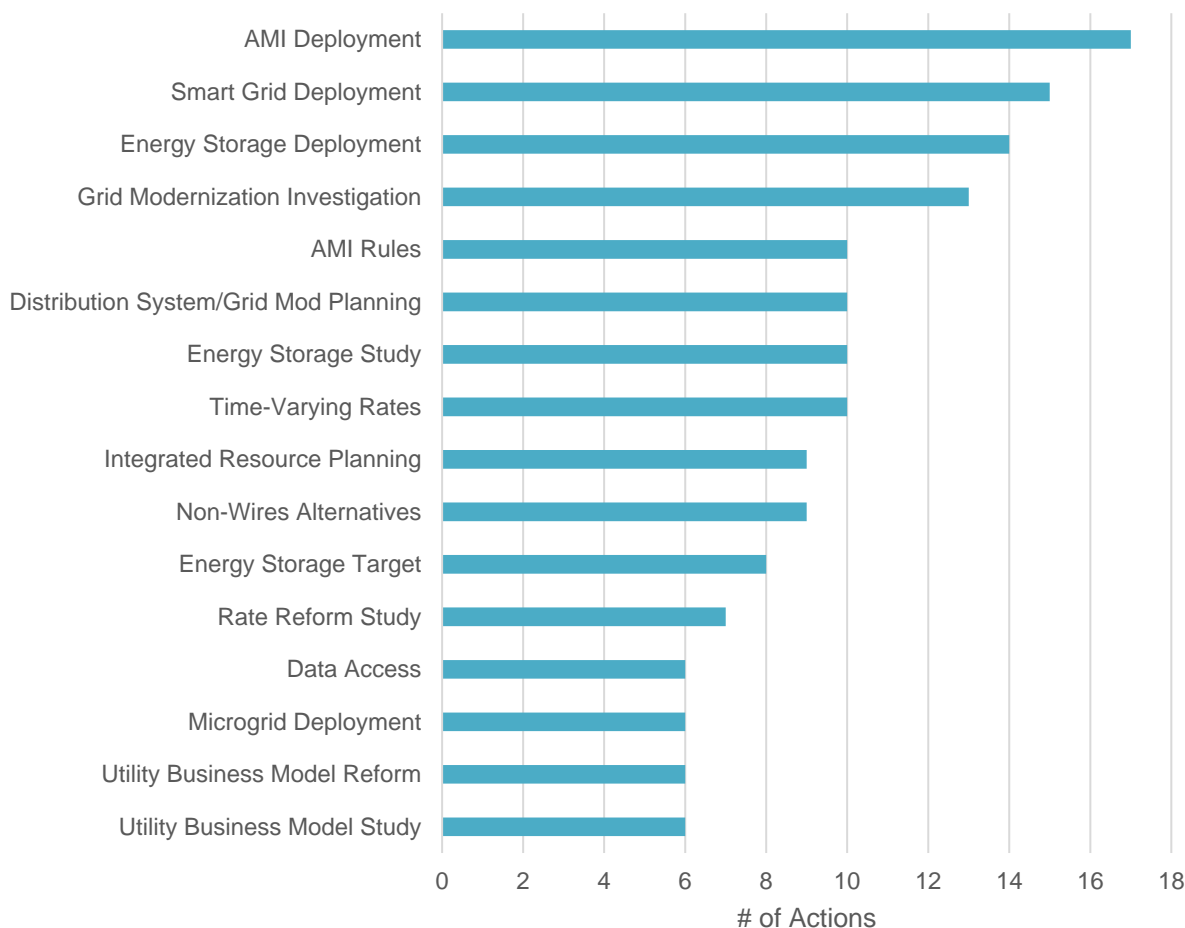


Figure 3. Most Active States of Q3 2017

