

Emerging State Approaches for Energy Storage Development

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Project Summary

Project goal: To gain greater insight into how states are viewing energy storage technologies, the changing objectives that they are identifying for energy storage investments, and the practical challenges that they are facing in the pursuit of those objectives.

Approach:

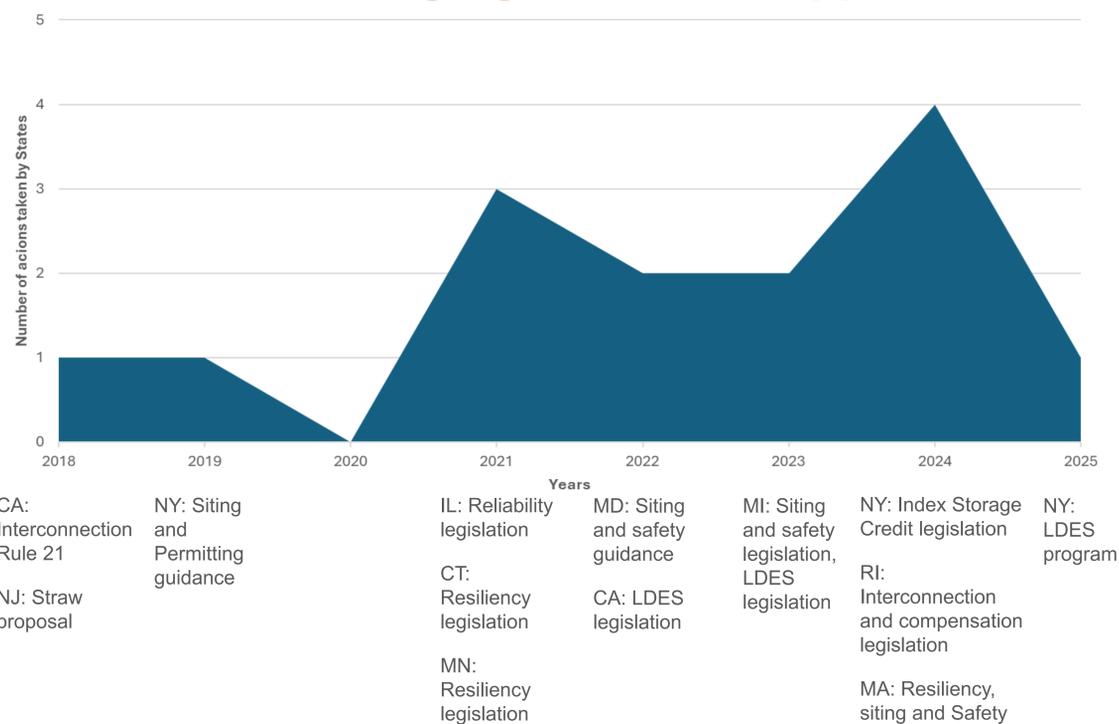
- **Review** state-level legislative, regulatory, and other agency proceedings involving energy storage
- **Identify** trends and themes that emerge from those proceedings
- **Synthesize** the resources, tools, and research that will support states in meeting these emerging objectives

Role of the lab: Our team has extensive, practical experience in state-level administrative proceedings and is uniquely situated to objectively look across proceedings in multiple states, see the trends, and identify the resources and information that will be required to assist states in these emerging areas.

Project Impact: This work will provide greater insight into emerging use cases for energy storage, how states are viewing storage technologies, and the practical challenges that they face in developing and implementing energy storage programs.

Alignment: This work supports the Administration's priority for grid reliability and resilience by providing insight into how states are using energy storage in support of those objectives. It also supports the Administration's priority for grid addition by identifying practical challenges that impede storage deployments.

Review of emerging state-level approaches*



* The effort encompasses regional diversity through a comprehensive search of state level approaches towards energy storage. This figure should be considered a representative sample of various approaches and trends

Approaches Taken by Various States

Objective-Specific Approaches	Addressing Practical Implications of Storage Deployments
<p>Resiliency</p> <ul style="list-style-type: none"> • States including New Jersey, Maine, Connecticut and Massachusetts have prioritized grid resiliency in their efforts to expand energy storage deployments • These efforts include creating a straw proposal, incentives, rate design, and microgrids 	<p>Siting and Permitting</p> <ul style="list-style-type: none"> • Extensive siting processes and standards from Michigan and Massachusetts have emerged for utility-scale energy storage systems, to streamline and expedite storage deployment • New York published the battery energy storage system guidebook, that has supported multiple local governments in the state to make appropriate zoning bylaw changes for energy storage
<p>Reliability and Resource Adequacy</p> <ul style="list-style-type: none"> • Illinois has developed incentive programs for energy storage projects that improve grid resilience • California's resource adequacy program has leveraged energy storage to maintain reliability during peak demand periods 	<p>Public Safety</p> <ul style="list-style-type: none"> • High-profile fires at utility-scale battery installations have increased public concerns about energy storage and prompted several states to specifically address safety in their energy storage proceedings • Maryland also issued a siting and safety best practices for BESS report
<p>Market Transformation</p> <ul style="list-style-type: none"> • California established LDES-specific incentives in 2022 • New York and Michigan have included 8-hour duration storage, and multi-day storage respectively in their energy storage development plans 	<p>Interconnection and Compensation</p> <ul style="list-style-type: none"> • California's Rule 21 developed tariffs for different utilities that facilitate and guide the interconnection process • New York's Index Storage Credit combines a competitive auction format with make-whole payments to provide revenue certainty for developers while selecting the least-cost projects

Discussion

- The initial wave of energy storage regulations enacted by states intended to support the development of energy storage technologies, but generally lacked specificity regarding the targeted impact of the storage investments
- The combination of evolving energy storage technologies, changing grid needs, and growing familiarity with energy storage is driving states to enact a new wave of energy storage regulations that are based on specific objectives
- At the same time, the rapid increase in energy storage installations is also creating practical challenges in areas such as interconnection, safety, siting, and permitting that a growing number of states are beginning to address
- Identifying these objectives and implementing them through the development of new regulations requires extensive proceedings that involve significant agency resources. Objective, responsive research that helps regulators frame the issues and identify their options can accelerate those proceedings and contribute to their successful resolution

Summary

- **Use Cases Continue to Evolve:** Energy storage deployments have rapidly grown over the last decade, but new use cases and potential values continue to be identified
- **Regulatory Barriers:** Because they are flexible and scalable, energy storage technologies can be installed in a wide range of locations and provide a wide range of services. While that flexibility can benefit the grid, it does not fit well within traditional grid paradigms
- **Research and Innovation:** Full realization of energy storage's value to the grid requires regulatory changes to ensure that the unique characteristics and benefits of energy storage are recognized in planning processes, accurately compensated, and accounted for in deployment processes. Objective research can provide frameworks for states to identify these issues, explore options, and develop tailored solutions to meet their needs