

## States Are Striving to Implement Full Potential of Energy Storage

**E**nergy storage is widely viewed as a game changer — an essential component of efforts to modernize the nation's electric grid. Recognizing the value of storage for integrating renewable energy into the grid, states are mixing and matching approaches in an effort to remove barriers and provide incentives. According to a recent National Conference of State Legislatures report, 27 states approved 77 energy storage measures in 2019 and 2020. Thus far in 2021, four more states have adopted measures.

Storage technologies, like the policies that govern them, are not all alike. The Electric Storage Association, or ESA, categorizes the technologies as: batteries, thermal energy storage, mechanical energy storage, pumped hydropower, and hydrogen energy storage. Each has its own strengths and weaknesses. For example, lithium-ion batteries produce electricity quickly but have limited duration. In comparison, pumped hydropower offers large capacity but can be used in limited locations — and raises environmental

concerns, as evidenced by the recent outcry over a proposed facility in New York's Catskill mountains.

Energy storage technologies offer myriad benefits, in addition to supporting renewables. NCSL explains that storage also “can increase resiliency, provide backup power during power outages, stabilize the grid, lower the cost of meeting peak power demand [and] reduce transmission infrastructure costs.” And, many of the technologies can be deployed at utility-scale facilities as well as residential and commercial sites.

While many states are advancing energy storage in conjunction with climate initiatives, NYU Law School's Richard L. Revesz and Burcin Unel have emphasized in their scholarship

that “cheaper storage could also facilitate a higher usage of fossil fuels,” and “it is important to design policies that help ensure that the increased use of energy storage leads to a reduction of greenhouse gas emissions.” California, for example, modified its incentive program for self-generation technologies to address the concern that storage had increased its carbon footprint.

Although the federal government and regional market policies govern aspects of energy storage, the ESA emphasizes that state policies are the “primary driver” and central to helping the industry reach its 2030 target of 100 gigawatts of energy storage. Similarly, in announcing its new Storage Advocacy Network, the Solar Energy Industries Association emphasizes that it will be “putting its full weight behind” state policies that advance energy storage, thereby helping to achieve SEIA's 2030

goal of solar accounting for 20 percent of electricity generation.

To advance energy storage, states are adopting an array of measures that include establishing procurement targets and, in some cases, mandates. As ESA's Jason Burwen explains, when a state sets a procurement target it helps catalyze action by sending signals to developers, investors, and utilities. Leading the pack is California, which set its first target in 2010. Additional states with targets include Massachusetts, New Jersey, New York, Nevada, Oregon, and Virginia.

States also are updating regulatory requirements developed prior to the emergence of storage technologies. Vanderbilt Law School Professor Jim Rossi explains: “Utilities need to consider storage as an integral part of a cost-effective energy-resource portfolio, but this will depend on states removing regulatory barriers to the integration of storage into the power grid.”



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For example, the planning processes used by many utilities to identify future grid investments may rely on models that do not adequately account for the value and role of storage. States such as Colorado, South Carolina, and Virginia now require utilities to consider or include energy storage in their planning processes. In addition, Oregon and South Carolina have adopted measures aimed at ensuring that energy storage systems connect efficiently to the grid.

Also front and center are incentive programs that foster research and development as well as deployment. Some state programs incentivize storage when it is paired with renewables, including Oregon's rebate program and Maine's procurement program, or as part of grid modernization efforts, such as New Mexico's grant program. In other states, including California and Virginia, some incentives are aimed at supporting on-site backup energy systems.

Other states offer various forms of tax incentives (Maryland and New Hampshire) and financing (Illinois and Washington). In addition, some state incentives advance technologies, including programs in Oregon and Washington that support the development of longer-duration pumped hydro storage.

Taken together, these state initiatives are laudable, but their efforts will need to accelerate — and more states will need to jump on the bandwagon — if storage is to realize its transformative potential.

**More state programs are needed if storage is to realize its enormous potential**