

PULSECLOSING® TECHNOLOGY REDUCES SYSTEM STRESS BY 95%.





Dec 2, 2022
by Janique Williams

ALSO IN THIS ISSUE

December 2, 2022

Nuclear | Dec 7, 2022

Small Modular Reactors Aren't Difficult Nuclear Waste Generators

by Aaron Larson

Coal | Dec 7, 2022

Co-Firing with Ammonia Project Set for Chilean Coal Plant

by Darrell Proctor

Commentary | Dec 7, 2022

Evolution and Continuation: How Distributed Control Systems Will Change and Adapt

by Johan Bjorklund

Legal & Regulatory

The Tales of Battery Energy Storage System Permitting Process

According to Elon Musk, solar and batteries go together like peanut butter and jelly. The sustainability of renewable energy relies on the deployment of energy storage systems for the storage of energy harnessed by renewable sources. The reduction in the cost to manufacture battery energy storage systems (BESSs) has catapulted the use of these types of storage systems all over the country, even if they are not the most efficient type of storage.

A BESS is a rechargeable system that allows storage of energy from solar arrays, wind turbines, or the grid. BESSs have seen significant growth. The [U.S. Energy Information Administration](#) predicts that battery storage will contribute 10,000 MW to the grid between 2021 and 2023, which is 10 times higher when compared to 2019. However, the implementation of battery storage has been far from smooth; instead, it has been plagued with safety and permitting challenges.

Battery Storage Safety Concerns

Gas | Dec 6, 2022

GE Releases New Option to Cut Emissions on Its Mobile Gas Turbines



by Aaron Larson

Nuclear | Dec 5, 2022

Iran Building New Nuclear Plant; Indonesia Seeks Investors for its First



by Darrell Proctor

Geothermal | Dec 5, 2022

Mitsubishi Power Will Build New Geothermal for Indonesia



by Darrell Proctor

Nuclear | Dec 1, 2022

Three Nuclear Giants Will Vie for Czech Republic's Dukovany Expansion



by Sonal Patel

FOLLOW US



We are first in your inbox with the most important news in the industry—keeping you smarter and one-step ahead in this ever-changing and competitive market.

[Start your subscription](#)

The rise in the use of BESSs does come with challenges for utility, commercial, and industrial entities. The majority of the BESSs used are based on lithium-ion chemistries, which have inherent deficiencies. The dangers of the use of lithium-ion batteries include fires as a result of thermal runaway, explosions from chemical release, and electric shocks from stranded energy hazards.

The Electric Power Research Institute has tracked 10 BESS incidents since 2019, including a fire at an energy storage facility in Chandler, Arizona, in April 2022, and a fire at a battery storage facility in Moss Landing, California, in September 2022. The safety hazards have added to the complexity of the permitting process, even with the development of safety procedures by the National Fire Protection Association (NFPA) and regional fire departments.

Permitting Regulations

Many states, such as California, Colorado, and Maine, have lofty ambitions to reduce their dependence on fossil fuels. Therefore, the deployment of energy storage is vital.

How much can you improve the economic performance of your plant?

GE Digital

[See Results](#)

Unlock the potential of advanced analytics in thermal power generation. The value calculator demonstrates how APM Performance Intelligence and Reliability Predictive Analytics can improve heat rate efficiency, reduce

BESSs are relatively new, and most zoning ordinances do not allow the installation of these facilities without receiving a variance or special use permit. Zoning variance applications appear to be challenging in some states and counties, such as Virginia and New York, while states like California have enacted legislation to make the application process more streamlined to facilitate faster deployment of BESSs. States like Arizona appear to be focused on the climate, environmental, and economic implications in determining rezoning applications for the systems.

California. California has been a leader in the deployment of BESSs and has implemented regulations that makes deployment of these systems easier despite safety hazards and incidents. Assembly Bill 546 (AB 546) was passed in 2017 to facilitate the deployment of energy storage by requiring cities and counties to make all documentation associated with the permitting of energy storage available online by September 2019. It further required planning offices to provide guidelines for permitting, including best practices.

In response to several denials of renewable projects, in June 2022, AB 205 was enacted. It expanded the power of the California Energy Commission (CEC), wherein, the Commission has the power to approve energy storage capable of storing 200 MWh or more of electrical energy until June 30, 2029. Local planning boards no longer have jurisdiction under AB 205 to hear energy storage permitting applications, if the system is 200 MWh or more and a developer opts in by filing its application with the Commission. The CEC must decide whether to approve a permit application within 270 days of accepting the application as complete.

The bill also allows the CEC to supersede the application of statutes, regulations, or ordinances of the state or federal law (if permissible). However, the CEC cannot act arbitrarily in approving energy storage systems, it must have several public meetings in the project area to get feedback from community members and to analyze whether the community will be impacted positively or negatively. Local government will also be able to submit comments on applications submitted to the CEC. The CEC under AB 205 does not have the power to supersede authority under agencies such as the California State Water Resources Control Board, local air quality management boards, or the California Coastal Commission.

This bill has been criticized by some organizations, such as the Rural County Representative of California, as it is viewed as usurping local control and precluding local government from having a meaningful role in the approval process. This is significant as local citizens are often most affected by the development of projects.

In August 2022, California again attempted to remove the barriers to deployment by enacting AB 2625. AB 2625 removed the requirement that land being leased for battery storage should be subdivided under the Subdivision Map Act. The subdivision requirement normally adds months, if not years, to the approval process.

The deployment of BESSs in California occurs both in rural areas where agricultural lands are available, and also in urban areas in proximity to residential dwellings. Kings County has seen major growth in renewable energy, as it has acres of farmland after farmers abandoned the lands due to drought. The county has been seen as progressive, approving projects and granting conditional use permits within six months or less, while landowners are delighted as they receive revenue from barren lands. One of the largest projects in the county is called Slate Solar and Storage Project with a 561-MW battery storage project.

San Diego County has had several BESS projects, even though the approval process is slower and sometimes more contentious. Among the BESS projects in San Diego that have received approval is the Fallbrook 40-MW energy storage system. However, there are some instances where permit applications are denied, such as the EnerSmart Storage 39-MW battery storage system in Ramona, California, because residents were worried about property values, noise pollution, and fire hazards.

Arizona. Like California, Arizona was seen as a pioneer for energy storage. However, due to safety incidents, it is now less accommodating than its neighbor. The Arizona legislature has not enacted any laws relating to battery storage, and before the Sunrise explosion in 2019 injured several firefighters, there were no local rules for energy storage.

Safety procedures were developed after investigations identified methods designed to prevent a recurrence, such as adding fire suppression, spacing, and ventilation requirements. The deployment of BESSs has been plagued with safety issues and has resulted in delays. Arizona Public Service halted its battery expansion for two years after a fire at its facility.

In the absence of state legislation for energy storage, counties within Arizona have developed regulations and guidelines for the approval of projects. In Maricopa County, when determining whether to approve rezoning for BESSs, representatives focus on the nature of the area, the location of transmission lines, and the development of the area.

For example, the proposed location for the RE Papago Solar Photovoltaic Power and Energy Storage Project was relatively underdeveloped and decision-makers felt it would not negatively affect the visual quality of the area, while providing economic value and employment opportunities, so it got a green light. Planning boards seem more open to applications from

developers that have a comprehensive plan for the construction and installation of battery storage and utility-scale solar when there is an emphasis on the economic impact of the project to the community and how it will positively affect the citizens by the providing jobs.

Virginia. The development of safety and permitting regulations has delayed deployment in states such as Virginia. After the enactment of the Virginia Clean Energy Act, progress has been slow, even with its goal to have 3,100 MW of energy storage by 2035. Many of the BESSs have been led by Dominion Energy, or in partnership with the entity, as it is required to acquire or construct 2,700 MW of energy storage by 2035. Dominion launched its first three pilot projects in summer 2022, totaling 48 MW.

A BESS permit application must go through several steps before it can be constructed in Virginia. An applicant is required to have conditional zoning approval to have the parcel re-zoned for industrial or rural use. A conditional use permit may also be needed to permit the construction and operation of the project. The permit creates legally binding conditions that the developer must follow, which include signage, decommissioning, and project layout. Further, the local permitting commission must determine whether the project is substantially in accordance with the comprehensive plan based on the general location.

Even after going through the hoops that a local planning board requires, a developer must also secure a permit-by-rule (PBR) with the Virginia Department of Environmental Quality for all energy storage under 150 MW. Several requirements must be satisfied under the PBR, such as the details of the project and property, design, safety, and useful life. There is also robust community outreach done for residents to express concerns about the application.

St. James County recently approved a 22.35-MW lithium-ion BESS by Calvert Energy LLC, after previously delaying the approval. The delay was a result of residents living in proximity to the project area raising concerns about the potential for fires. To quell the concerns of residents, the developer had to explain that the batteries had been redesigned since the fire in Arizona.

New York. New York state (NYS) has set a target of 1,500 MW of storage by 2025 and 3,000 MW by 2030. Approval of BESSs appears to be an uphill battle because of the various conditions that a developer has to satisfy. Unlike Arizona, NYS has a very detailed guidebook to assist local governments in permitting energy storage. Battery storage does not fall under the existing

use of land, so local zoning exemption is required.

The density in New York City (NYC) makes the approval of BESSs challenging due to the possibility of fires. The New York City Fire Department (FDNY) requires that the batteries used must be Underwriters Laboratories 9540 certified and have undergone Underwriters Laboratories 9540A testing for the evaluation of thermal runaway. The evaluation and certification must be completed as a part of the BESSs approval. FDNY also requires a developer to submit its design and a permit for medium to large BESSs, to know the location and to conduct periodic inspections. The regulation further requires the supervising operator of the BESS to hold a Fire Department Certificate of Fitness.

Zoning remains a challenge within NYC, as only some districts permit energy storage projects, namely residential districts (R1-R2 and R3-R10) by special permit, and as of right within Commercial Districts (C1, C2, C4, C5, C6, and C8) and Manufacturing Districts (M1, M2, and M3). A zoning variation will be needed if a developer were to use sites outside the above-named districts. Additionally, there is a preference for outdoor rather than indoor projects. As such, developers often look at open lots or rooftops.

The permitting for the 135-MW energy storage project in Astoria, Queens, located at the former Charles Poletti power plant, was not challenging because energy storage was permitted as of right due to the past use of the property and the nature of the neighborhood. In an article published by *The New York Times*, an executive of an energy development company that owns and operates a BESS in the Bronx expressed that it remains a puzzle to find an appropriate space for energy storage when examining all the variables in NYC.

Outside of NYC, BESS approval is not as complicated, but many counties are still inexperienced in the approval process. Counties outside of NYC have a broader discretion to approve area variances where energy storage is not permitted. When determining whether to grant an area variance, a balancing exercise is done by looking at the benefit to the applicant against the possible harm to the community. The balancing exercise was seen in the approval of the 80-MW BESS by the Southold Town Zoning Board of Appeals, where the appeal board looked at the possible environmental harm to preserved lands in the vicinity of the project area versus the benefits of the system to the area and climate change policy. The board had approved a special exception to have the facility on the property zoned light industrial, while ensuring that the designs of the

system would mitigate against any possible environmental impact.

There have been many strategies implemented in states to have deployments of BESSs whether by local or state regulations. Counties are in a tug of war, trying to balance the need to ensure safety and retaining the nature of neighborhoods versus the need to be progressive to tackle climate change. The energy storage targets appear to be aspirational in many states because deployment has been sluggish. California has been strategic in removing roadblocks by taking power from local government where applicable, but many states are not willing to restrict the power of local government. However, compromises may be necessary for states to meet their energy storage targets through rapid deployment of BESSs.

—**Janique Williams** is a licensed attorney, working as a Senior Regulatory Analyst with Pepco.

SHARE this article     

- #Safety
- #Permitting
- #Legal And Regulatory
- #BESS
- #Battery Energy Storage System
- #Li-Ion Batteries

MORE LEGAL & REGULATORY NEWS

