

Tracking Local Moratoria on Battery Energy Storage Systems

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Overview

Local siting of battery energy storage systems (BESS) is a critical aspect of the deployment process. Moratoria—where a local jurisdiction imposes a temporary ban on some or all storage projects—are a growing challenge in that process.

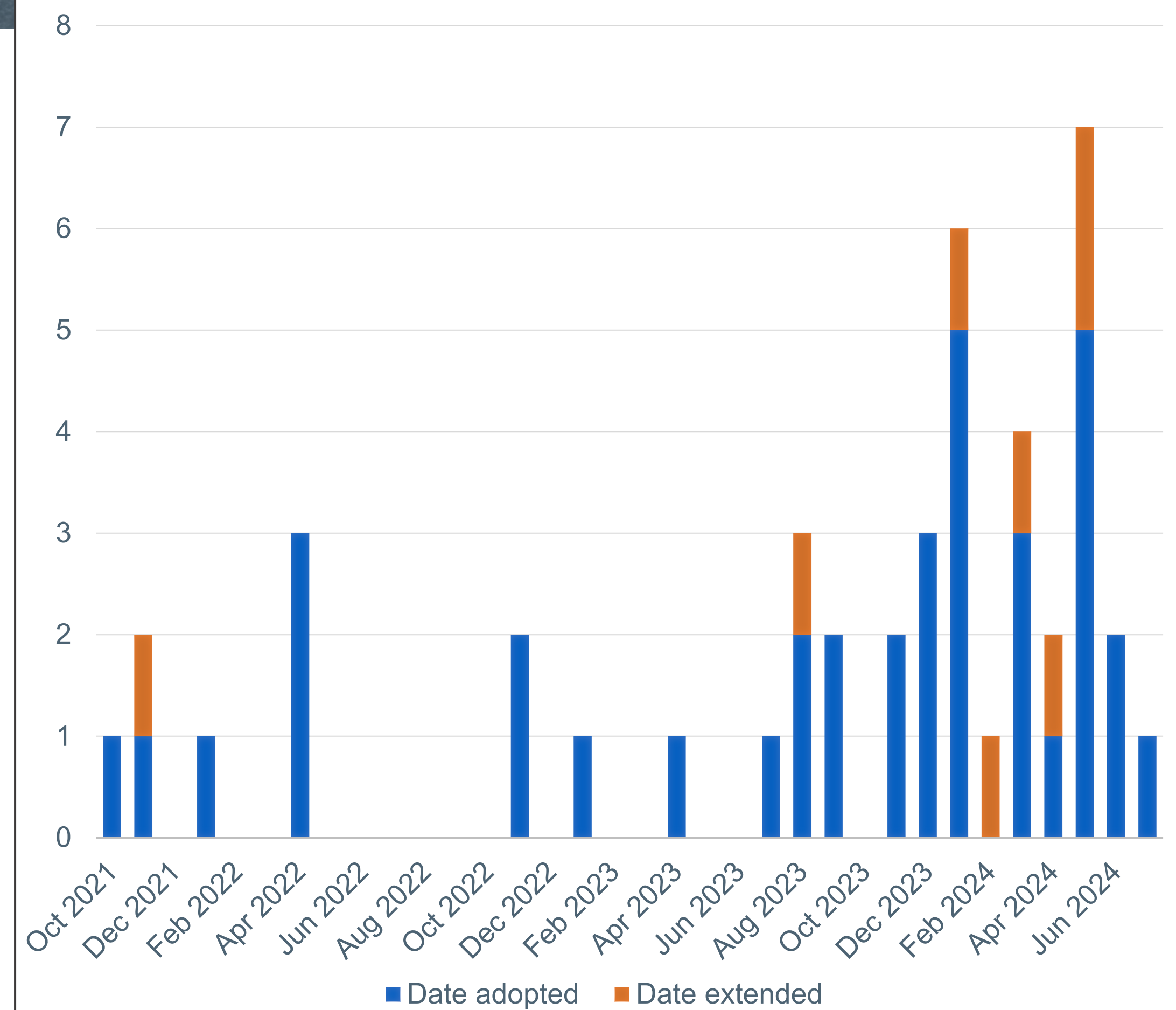
As part of a portfolio of work on BESS siting and zoning at the local level, PNNL research identified a representative sample of 37 local moratoria enacted in 12 states between 2021-2024 to identify patterns, key drivers and concerns, and potential pathways forward.

Trends and Distribution of Moratorium Adoption

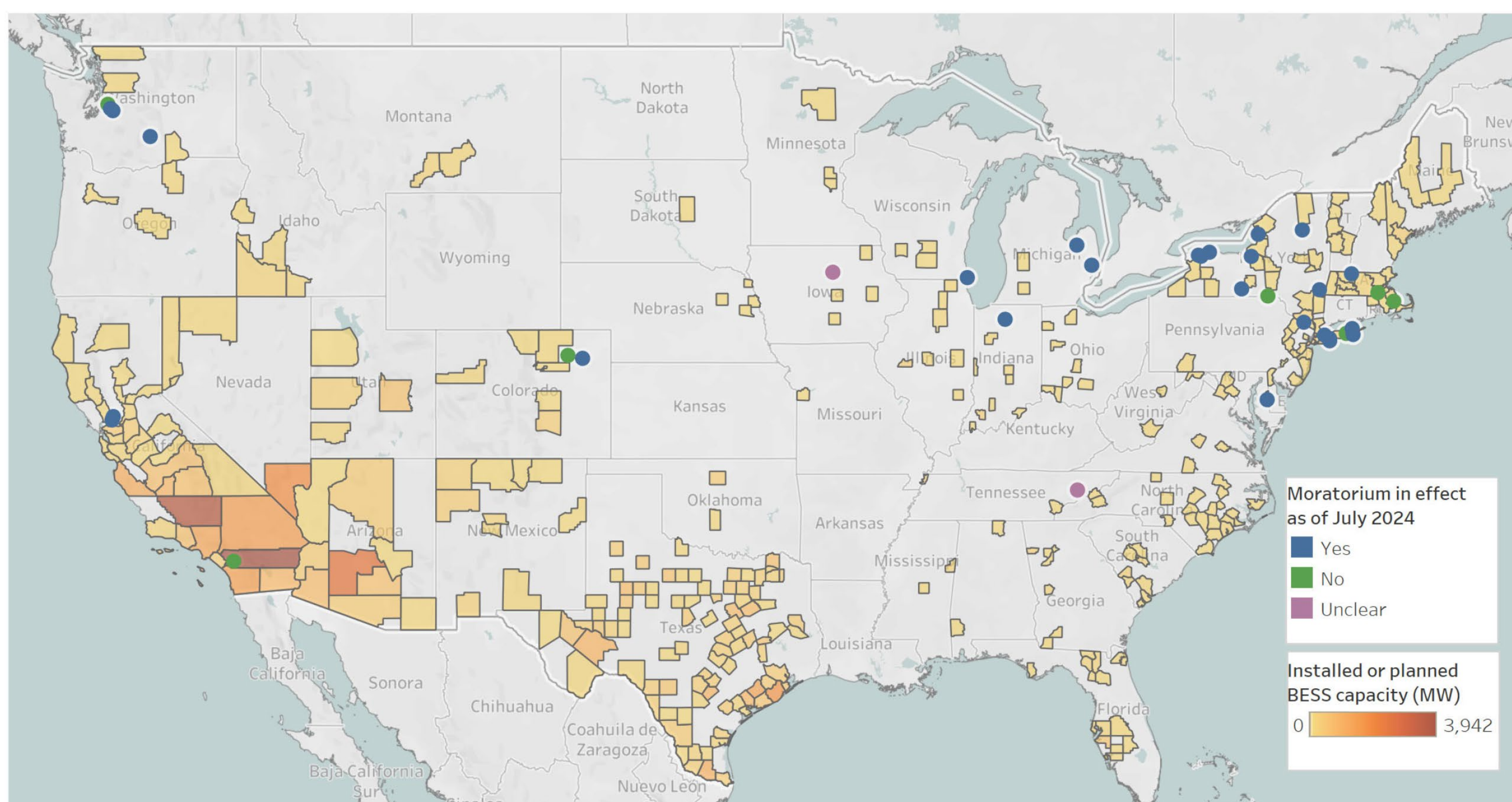
- ◆ **Specific projects are often a catalyst:** Many moratoria (just over half of the 37 reviewed) were adopted in response to a proposed BESS project in that jurisdiction. Others may be adopted after systems are deployed in neighboring jurisdictions.
- ◆ **Recent and increasing phenomenon:** The earliest moratorium in this review was adopted in October 2021. Adoption increased significantly in 2023 and 2024 to date. This mirrors trends in BESS deployment, which has risen sharply since 2021.
- ◆ **Neighbor effect:** In many jurisdictions, officials cite adoption of a moratorium in a nearby city or county as a driver of their moratorium proposal.
- ◆ **Geographic clustering:** Moratoria are naturally present in areas with or near BESS projects. Moratoria are notably clustered in New York, where high BESS deployment, neighbor effects, recent local fires, and other state-level developments are drivers.

ADOPTION OF BESS MORATORIA

TIMELINE OF INITIAL ADOPTION OR EXTENSION OF 37 LOCAL MORATORIA, 2021-2024



JURISDICTIONS WITH LOCAL BESS MORATORIA AND INSTALLED OR PLANNED ENERGY STORAGE CAPACITY IN THE U.S.



Source for BESS data: EIA 860M, May 2024. Capacity aggregated at county level. "Planned" projects are actively under construction or in the regulatory approvals process. Moratoria not in effect have been repealed or expired. Moratoria still in effect are as of July 2024.

Common Drivers of BESS Moratoria

Some common drivers of moratorium adoption, based on text of adopted moratoria and local news coverage:

- ◆ **Fire:** Concerns about battery fires, often referencing specific incidents, are very common.
- ◆ **Lack of familiarity and data:** BESS technologies are new and unfamiliar, driving concerns including lack of first responder training for battery incidents.
- ◆ **Noise and visual impacts:** Noise and viewshed concerns are common for residential or mixed zones.
- ◆ **Property values:** As with other development proposals, BESS projects can raise concerns about neighboring property value impacts.
- ◆ **Local benefits and revenue:** Concerns arise about imbalance between impacts (highly local) and benefits (diffuse for grid-connected systems).
- ◆ **Land use conflicts:** Conflicts between BESS and other land uses, particularly agriculture, are noted in moratoria in some areas. This concern is also a common driver of restrictions against large wind and solar projects, especially in rural communities.

Discussion and Future Work

- ◆ **Adopt clear zoning ordinances:** Many local officials use, or plan to use, their moratorium period to research and develop a zoning ordinance for BESS, pointing to a need for resources and support around best practices for BESS zoning. PNNL is engaged in ongoing work in this space.
- ◆ **Provide education on fire and safety:** Concerns about safety, especially regarding fires, remain a prevalent concern driving moratoria and other pushback against BESS. Ongoing education and support for communities, planners, and first responders around fire risks will continue to be critical in supportively addressing these concerns. There are roles for project developers, state officials, and the research community in these efforts.
- ◆ **Prioritize community engagement:** Proactive and thoughtful community engagement, especially from project developers, is an essential step in addressing local concerns. A forthcoming PNNL report will address best practices for community engagement around BESS planning, zoning, and siting.
- ◆ **Consider state authority and roles:** In some cases, state siting bodies may have the authority to step in to supersede local restrictions or moratoria. Tradeoffs should be considered with this approach, such as impacts on community support.