

ILLINOIS
RENEWABLE
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BATTERY STORAGE

**Matters to Be Considered When Developing
Battery Energy Storage Projects in Illinois**

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Presenter:

David Streicker, Shareholder

Polsinelli PC

dstreicker@polsinelli.com



Threshold Matters to Be Considered

WHAT TO CONSIDER PRIOR TO 1ST CONTACT WITH PUBLIC OFFICIALS

- Is the Project Co-Located Storage or Stand-Alone?
 - Localities & the State will handle project configurations differently
- Local Permitting Considerations
 - Compatibility with existing zoning classifications
 - Fire Protection
 - Sound
- Road Use Considerations (Municipal v. Rural Area)
- State & Local Tax Considerations (Property Tax & Sales Tax)



Why is Co-Located v. Stand-Alone Important

POTENTIAL KEY DIFFERENTIATOR WITH LOCAL PERMITTING & STATE-LEVEL TREATMENT

- If the BESS project is co-located with a solar project, it might be permitted using the existing local solar criteria
- If the BESS project is co-located with a solar project, HIB-Solar will likely apply and AIMA requirements will also apply
- Stand-Alone projects are in the wild west at the moment, often having little clarity from a permitting or state & local tax prospective
- No Siting Bill protection for Stand-Alone BESS (see 55 ILCS 5/5-12020)



Local Permitting Considerations

- Do current county or municipal ordinances contemplate battery storage?
 - If not, the locality might not accept an application
 - In an unincorporated area, may consider annexation v. text amendment
- If in a zoned area, careful review of the existing special or conditional use permitting criteria is key, along with close coordination with government officials
- Road use agreement necessary?
 - a lot depends on location – rural v. populated area



Fire Protection – Emerging Issue

Battery storage is a key piece of California’s clean energy transition. But there’s a problem with fires



Terra-Gen’s Valley Center battery storage project opened in February 2022. A fire at the facility in September briefly shut down operations. (Terra-Gen)

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Emerging Hazards of Battery Energy Storage System Fires

Grant Number: EMW-2016-FP-00833

Principle Investigator: Ofodike Ezekoye Ph.D., P.E.
University of Texas at Austin

In April 2019, an unexpected explosion of batteries on fire in an Arizona energy storage facility injured eight firefighters. More than a year before that fire, FEMA awarded a Fire Prevention and Safety (FP&S), Research and Development (R&D) grant to the University of Texas at Austin to address firefighter concerns about safety when responding to fires in battery energy storage systems of all sizes. Professor O.A. (‘DK’) Ezekoye is working with other engineers, firefighters, and industry partners to develop a better understanding of the magnitude of the fire hazards.

There has been a dramatic increase in the use of battery energy storage systems (BESS) in the United States. These systems are used in residential, commercial, and utility scale applications. Most of these systems consist of multiple lithium-ion battery cells. A single battery cell (7 x 5 x 2 inches) can store 350 Whr of energy. Unfortunately, these lithium cells can experience thermal runaway which causes them to release very hot flammable, toxic gases. In large storage systems, failure of one lithium cell can cascade to include hundreds of individual cells. The hot flammable gases can result in an explosion, or a very difficult to extinguish fire.



Sound –Emerging Issue

BESS noise has ‘exploded as a concern’ recently

By [Cameron Murray](#)

April 8, 2024

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AI Overview

Battery Energy Storage Systems (BESS) can create noise issues for nearby residents and workers due to the humming and buzzing of their high voltage electrical equipment. Some of the main sources of noise include:

- Cooling systems: Fans and pumps are used to cool the battery cells, which can generate a lot of heat when charging or discharging.
- Inverters: These devices convert direct current (DC) to alternating current (AC) for grid integration, and they emit a continuous humming noise.
- Transformers: Primary and LV to MV transformers are also sources of noise.

Some ways to reduce noise from BESS include:

- Noise barriers: These are essential for every BESS.
- Site design: Data-informed site selection can help minimize investment risks.
- Noise control measures: These can be designed and tested for the battery and PCS units.
- Post-construction noise level measurements: These can verify compliance with noise limits.

Noise issues can sometimes arise later in the process, when changes are more costly or difficult to achieve. To avoid this, it's recommended to consider noise monitoring before choosing a site for a BESS.

BESS Property Tax Considerations

HOW WILL THE PROJECT BE CLASSIFIED LOCALLY FOR TAX PURPOSES

- Commercial Solar Energy System means any device or assembly of devices that (i) is ground installed and (ii) uses solar energy from the sun for generating electricity for the primary purpose of wholesale or retail sale and not primarily for consumption on the property on which the device or devices reside (35 ILCS 200/10-720)
- Only real property is subject to ad valorem tax in Illinois (ILL. Const. Act IX)
 - Which components of a BESS project are classified as real v. personal?
 - Will likely vary from county to county
 - Need to speak with the Assessors Office
- Potential legislative fix being considered



Managing Project Sales and Use Tax

- HIB-Solar will not apply to Stand-Alone (see ILCS 200/10-720)
- This puts developers back in the age of enterprise zone boundary amendment and detailed conversations with county assessors regarding the real v. personal property classification of project components
- Legislation has been considered to remedy the situation but has not passed



BESS Related Future Legislative Priorities

- SB 3959 and HB 5856 address primarily the Illinois Power Agency Act and Procurement Matters
- Siting Bill Use protections in the works?
 - To be effective it would have to cover both county and municipal level siting
- HIB – BESS?
- Standardization of property tax assessment for BESS?

