

Executive's Checklist for: Emergency Battery Storage

Battery technology has captivated the attention of the public. In addition, the application of batteries to store solar and wind energy has significant potential to aid in the transition to a cleaner energy future. Unfortunately, batteries (specifically lithium-ion batteries) remain significantly more expensive than other resiliency alternatives, such as backup generators, for emergency backup power applications.

However, in select instances, it is possible for a battery solution to “pencil”. The following checklist breaks down the design and installation process for an emergency backup battery storage into bite-sized chunks.

Emergency Battery Storage Checklist:

1. Determine your resiliency objectives.

- a. Analyze load using billing and interval data.
 - i. *It is recommended that you hire a professional electrical engineer to ensure proper load analysis.*
 - ii. What is the load shape?
 - iii. How does the shape of the load change depend on different time parameters?
 1. Over the course of a day
 2. Over the course of a week
 3. Over the course of a month
 4. Over the course of a year

2. Conceptual Design & Engineering.

- a. Once your resiliency objectives are defined, the next step is project design. It is recommended that you hire a certified installer/designer to ensure accuracy.
 - i. Where would you install the batteries?
 - ii. How many batteries do you need?
 1. The longest lasting utility-scale batteries can discharge for up to four hours. Once depleted, the battery is no longer operational until recharged; therefore, it is critical for your organization to install sufficient batteries to ensure you can withstand up to 99% of outages.
 - iii. Connectivity?

3. Permitting & Code Compliance:

- a. Determine local regulation and codes that apply to battery storage installations.
 - i. Hire legal representation or reach out to the Authority Having Jurisdiction (AHJ) to determine what procedures to follow and what codes to comply with.

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- ii. If your organization is a life-saving entity, battery storage might be prohibited for emergency backup power applications, that is unless you have up to 60 hours of storage available.
 - b. Submit design package to AHJ for approval.
- 4. Equipment Procurement:**
 - a. Determine the optimal battery rating and manufacturer.
 - i. Batteries ratings range from 30 minutes to 4 hours of discharge time.
 - 1. Shorter duration batteries are more expensive than longer lasting batteries because they are designed to discharge large amounts of energy over a short period of time.
 - 2. Longer duration batteries are cheaper because they are designed to discharge steadier and more even amounts of energy for longer periods of time.
- 5. Installation:**
 - a. Once the design package has been approved by the AHJ and the necessary equipment procured, the next step is the installation process.
 - i. It is recommended that you hire a certified installation team, including electricians and contractors, to ensure safety and successful installation.

FOR ADDITIONAL INFORMATION, OR TO SPEAK WITH AN ENERGY PROFESSIONAL, PLEASE CONTACT US AT WWW.EXERGYENERGY.COM OR EMAIL INFO@EXERGYENERGY.COM.