

CleanEnergyGroup

Understanding Solar+Storage

Answers to Commonly Asked Questions
About Solar PV and Battery Storage

What factors do I need to consider when designing a solar+storage system?

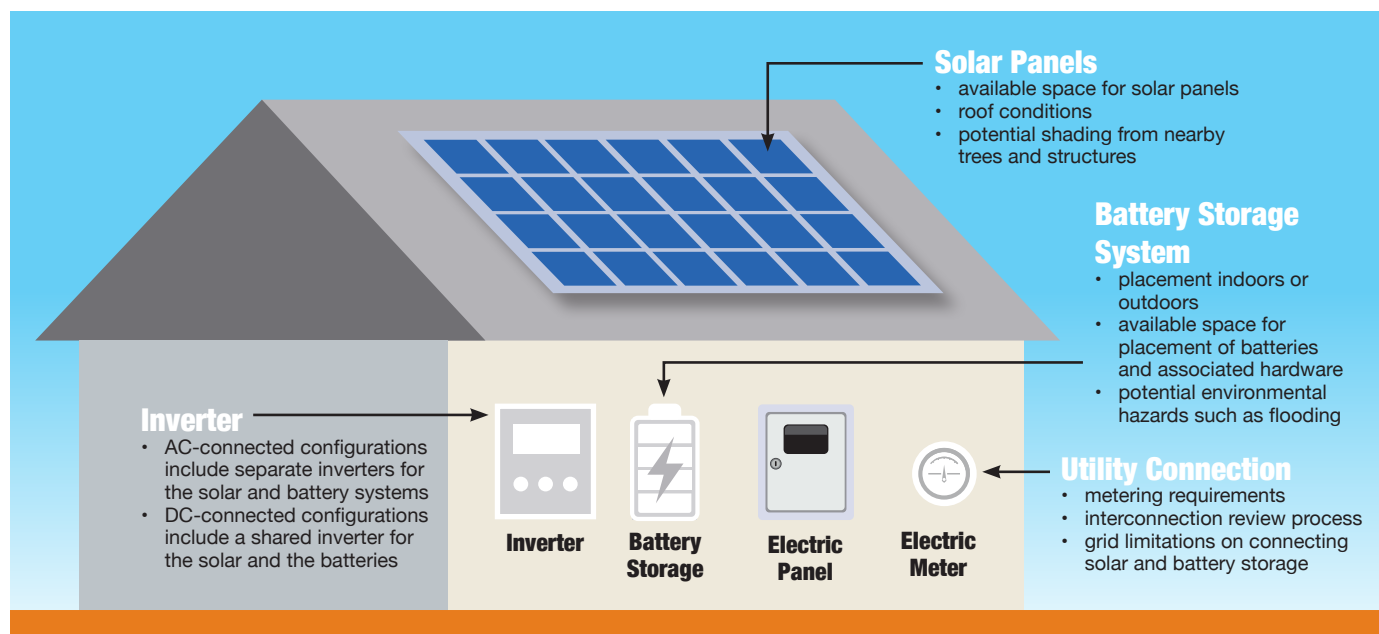
When designing a new solar and energy storage (solar+storage) project for your home, community facility, or business, the first step should be to clearly define the project's objectives. What do you want the solar+storage system to do? Are utility bill savings the driving factor? Or is it resilience during power outages? Or emissions reduction? The answers to these questions will help guide and inform the development process.

The next step is to assess the feasibility of installing a system. In addition to financial considerations, key physical and regulatory factors to consider include:

- **SOLAR AVAILABILITY:** Assess and identify any potential solar system sizing limitations, including roof conditions (available space, age, structural integrity, pitch, orientation, and necessary offsets), potential shading from trees and nearby structures, and alternative placement options such as carports and ground-mount systems.
- **BATTERY PLACEMENT:** Will the battery system be placed indoors or outdoors? How much space is available to install a battery system and associated hardware? Can the system be insulated from any potential environmental hazards such as flooding?
- **PERMITTING REQUIREMENTS:** To avoid delays later on, check with local permitting offices to get a clear understanding of the regulations and requirements governing the installation of both solar and battery storage systems. An experienced consultant or installer can be helpful in this process and should take the lead on determining compliance with local requirements and obtaining necessary permits.
- **UTILITY INTERCONNECTION:** Depending on the utility, an interconnection review may be required before a solar+storage system receives permission to operate, particularly for larger systems. The utility may impose limitations on how much solar and storage may be connected to certain sections of the grid before an infrastructure upgrade is necessary, which could add delays and additional expenses.

- **RESILIENCE:** When designing a solar+storage system to provide backup power during a power outage, the most important factor is determining what's going to be powered by the batteries during an outage—in other words, identifying which appliances and devices are considered *critical loads* that must run during a grid outage and which items are *non-critical*. Common examples of critical loads are refrigerators, elevators, and lighting and outlets in common areas. Providing backup power to the entire building and all its functions will require a larger battery. By focusing only on the building's critical loads, you can reduce the size and cost of the battery storage system.

Factors to consider when planning a solar+storage system



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There are several important factors to consider when approaching a new solar+storage project: physical and structural barriers that may limit system siting and configuration, local permitting and safety requirements, and utility interconnection procedures. All these factors can impact the cost and feasibility of a planned installation.

This text was adapted from chapter 1 of Clean Energy Group's July 2024 publication, *Understanding Solar+Storage: Answers to Commonly Asked Questions About Solar PV and Battery Storage*. Read the full guide at www.cleanegroup.org/publication/understanding-solar-storage.