



Modular PV and Storage System

Technology Overview

Presently, wind and solar technologies dominate the renewable energy landscape, but their intermittent energy generation creates a need for flexible grid systems that can store energy. The current industry standard uses centralized storage, requiring a fixed and costly installation process.

In contrast, the modular photovoltaic (PV) storage system provides a unique form factor: it stores 1 kWh of energy in a lithium-iron-phosphate (LFP) battery the size of a laptop. The battery is positioned beneath solar modules and is integrated with the racking system, eliminating the need for concrete ballasts, internal battery placement, and additional fire suppression measures. Advanced thermal management is employed to prevent thermal runaway, maintain an optimal working temperature, and extend the battery's lifespan.

A dual-power microinverter is incorporated, reducing energy conversion losses and ensuring interoperability with storage and PV systems.

Why is GSA Interested?

The modular PV and storage system allows GSA to scale with rooftop PV projects. The manufacturer claims a lower installed cost compared to rooftop PV with centralized storage, and a 10–15% energy-efficiency gain from the microinverter DC-architecture.

Deployment Potential

The modular PV and storage system technology is applicable to small or midsize buildings across the GSA portfolio.

Green Proving Ground (GPG), in collaboration with the U.S. Department of Energy, is evaluating the real-world performance of a Modular PV and Storage System in federally owned buildings within GSA's inventory. The technology will be provided by Yotta Energy and coordinated with other ongoing evaluations of this technology.