Is PV Plus Energy Storage Cost-Effective

Are solar-plus-storage projects economically viable?
Technology cost and utility rate structure are key drivers of economic viability of solar and storage systems. This paper explores the economics of solar-plus-storage projects for commercial-scale, behind-the-meter applications. It provides insight into the near-term and future solar-plus-storage market opportunities across the U.S.

Are solar PV and battery energy storage systems a good investment?
With rapidly falling solar PV and battery energy storage costs (U.S. Energy Storage Monitor: Q3 2018 Full Report, 2018, U.S. Energy Storage Monitor: Q3 2018 Full Report, 2018), there is a growing interest in using behind-the-meter, grid-connected solar PV and energy storage systems for energy and demand savings.

Will increasing utility rates increase solar-plus-storage savings?
This suggests that, similar to falling technology costs, increasing utility rates will result in a larger number of solar-plus-storage systems, larger system sizes, and increased savings from each system. On average, savings were highest for projects that combined both solar and storage (see Fig. 13).

How much does a solar PV system cost?
The system costs range from $380 per kWhfor those that can provide electricity for 4 hours to $895 per kWh for 30-minute systems. All right,so what will a 100-megawatt PV system with a 60-megawatt lithium-ion battery with 4 hours of storage cost?

Where are solar-plus-storage systems most cost-effective?
The highest potential for savings was found in California,New York,New Mexico,and Alaska. Across all scenarios modeled,solar-plus-storage systems were most often cost-effective in San Francisco,Anaheim,and Los Angeles. These locations have both good solar resource and relatively high demand rates.

What is a solar-plus-storage system?
Simply put,a solar-plus-storage system is a battery system that is charged by a connected solar system,such as a photovoltaic (PV) one. In an effort to track this trend,researchers at the National Renewable Energy Laboratory (NREL) created a first-of-its-kind benchmark of U.S. utility-scale solar-plus-storage systems.

This document summarizes a report by the National Renewable Energy Laboratory (NREL) that benchmarks the 2018 costs of utility-scale photovoltaic (PV) systems combined with lithium-ion ...

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