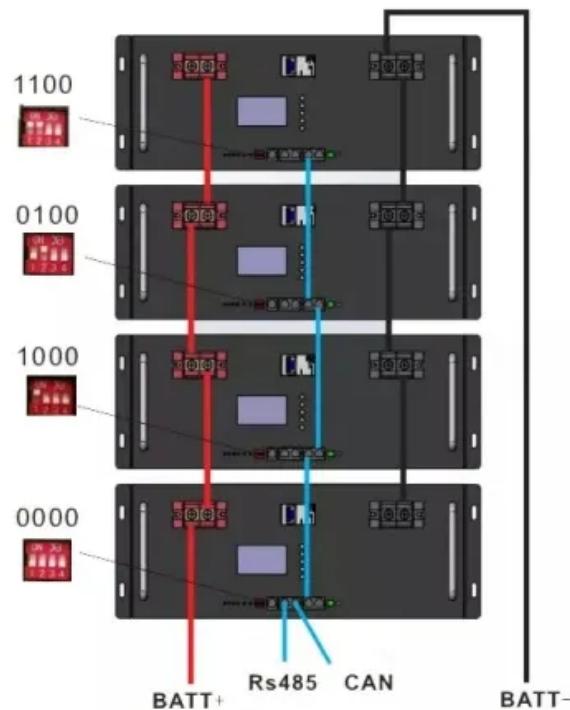


# Installed kilowatts of solar energy



## Overview

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Each benchmark system is representative of what is currently being installed in the United States and is defined in sufficient detail to assess the impact of system size, module efficiency, overhead, and many other factors on cost.

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Each year, the U.S. Department of Energy (DOE) Solar Energy Technologies Office (SETO) and its national laboratory partners analyze cost data for U.S. solar photovoltaic (PV) systems to develop cost benchmarks. These benchmarks help measure progress toward goals for reducing solar electricity costs.

NREL analyzes the total costs associated with installing photovoltaic (PV) systems for residential rooftop, commercial rooftop, and utility-scale ground-mount systems. This work has grown to include cost models for solar-plus-storage systems. NREL's PV cost benchmarking work uses a bottom-up.

Take control of your energy costs with solar power. Solar panels generate “free” electricity, but installing a system still costs money. A typical American household needs a 10-kilowatt (kW) system to adequately power their home, which costs \$28,241 in 2025. That price effectively drops to \$19,873.

Solar installation costs range from \$2.50 to \$5.00 per watt in 2024, making a typical 5kW residential photovoltaic system installation cost between \$12,500 and \$25,000 before incentives. This comprehensive price analysis explores equipment costs, labor expenses, and regional variations affecting.

The global installed capacity of solar energy has reached approximately 1,000 gigawatts (GW), translating to roughly 1,000,000 megawatts (MW), which means millions of households and businesses are increasingly turning to solar power. 1. The growth trajectory of solar installations is steep and.

The average cost to install solar panels before tax credit is approximately

\$29,360 for an 11 kW residential system in 2025, ranging from \$2.53 to \$3.15 per watt depending on your location and system specifications. Quick Cost Reference: Solar installation costs have dropped dramatically over the.

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