US Solar Battery Market to Hit $37.7 Million by 2030 | Growing at 8.2% CAGR

Rising Renewable Adoption Boosts Growth in U.S. Solar Battery Market Through 2030

WILMINGTON, DE, UNITED STATES, October 15, 2025 /EINPresswire.com/ --

The US solar battery market is witnessing significant growth, fueled by rising adoption of clean energy, smart city initiatives, and state-level renewable energy targets. According to a recent report published by Allied Market Research, the market was valued at $16.9 million in 2020 and is projected to hit $37.7 million by 2030, growing at a CAGR of 8.2% from 2021 to 2030.

> U.S. solar battery market to hit $37.7 million by 2030, driven by renewable energy adoption and demand for efficient energy storage. ”
>
> *Allied Market Research*

As the push toward decarbonization and energy independence gains momentum, solar batteries are emerging as a crucial technology to store solar power for residential, commercial, and industrial use.

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What is a Solar Battery?

A solar battery is a rechargeable battery system that stores energy generated from solar panels for later use. Commonly made of lithium-ion or lead-acid chemistry, solar batteries are designed to maximize the self-consumption of solar power by storing excess electricity during the day and supplying it during the night or cloudy days.

Key applications include:

Residential energy storage system

Commercial solar backup solutions

Off-grid installations and remote power stations

Solar EV charging stations

U.S. Solar Battery Market Growth Drivers

□ 1. Rising Demand for Clean & Cost-Effective Energy

Growing awareness around eco-friendly energy alternatives has led to increasing demand for solar battery installations across the United States. Solar batteries offer long-term savings, energy independence, and help users reduce their carbon footprint.

□□ 2. Smart City Projects & Infrastructure Investment

The rise of smart cities and investments in modern energy infrastructure are contributing significantly to the U.S. solar battery market growth. Integration of energy storage solutions into smart grids helps enhance grid stability, energy efficiency, and emergency power supply.

□ 3. State-Level Renewable Energy Initiatives

U.S. states like California are leading the way in solar capacity expansion. California's goal of achieving 50% renewable generation by 2025 is expected to fuel demand for solar batteries. The California Independent System Operator (CAISO) is planning to add 2.5 GW of battery storage, reinforcing the role of batteries in renewable integration.

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Market Segmentation Analysis

□ By Battery Type

Lithium-Ion Batteries

Held the largest market share of 79.3% in 2020, by volume

Expected to grow at a CAGR of 7.7%

Highly efficient with charge/discharge efficiency of 90-95%

Lead-Acid Batteries

Captured a 3.5% share in 2020, less efficient than lithium-ion (80-85%)

Flow Batteries & Others

The flow battery segment is forecasted to grow at a CAGR of 5.9%, offering longer cycle life and flexible scalability.

 By End User

Industrial Segment

Dominates the U.S. solar battery market due to high energy demand and grid backup needs.

Commercial Segment

Accounted for 32.1% revenue share in 2020, driven by commercial buildings, retail, and public infrastructure.

Residential Segment

Growing steadily due to incentives for home solar-plus-storage systems and rising electricity costs.

Key Companies Operating in the U.S. Solar Battery Market

The U.S. solar battery market is highly competitive with several established and emerging players:

Tesla Inc.

Panasonic Corporation

SunPower

Simpliphi Power Inc.

Enphase Energy

Solaredge Technologies Inc.

Fortress Power

Adara Power

Goal Zero

Power Sonic Corporation

U.S. Battery Manufacturing Co.

These companies are focusing on technological innovation, energy density improvements, and cost reduction strategies to gain a competitive edge.

Impact of COVID-19 on the U.S. Solar Battery Market

The COVID-19 pandemic disrupted the U.S. solar battery market in several ways:

Project Delays: Shortages in labor and logistics delays hindered battery installations and solar project completions.

Manufacturing Slowdowns: Temporary shutdowns of manufacturing units led to supply chain bottlenecks.

Market Recovery: Despite setbacks, demand is rebounding with large-scale projects moving ahead.

Key projects such as NextEra's Dodge Flat Solar Energy Center and Fish Springs Ranch Solar Farm in Nevada—featuring 300 MW of solar with 75 MW of battery storage—are progressing under contract with NV Energy Inc. Similarly, NextEra's Wheatridge Solar & Battery Storage Project in Oregon is advancing, in partnership with Portland General Electric Co.

Future Outlook

As the U.S. accelerates toward renewable energy goals and grid modernization, the demand for solar batteries is expected to soar. Key future trends include:

Increased residential adoption due to incentives and net metering policies

Integration of AI and IoT in energy storage systems

Falling battery prices due to technological advances and economies of scale

Growing popularity of hybrid energy systems combining wind, solar, and battery storage

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Conclusion

The U.S. solar battery market is on a strong growth trajectory, driven by the need for clean, reliable, and cost-effective energy solutions. With favorable policies, technological advancements, and growing awareness among end-users, the market is expected to more than double by 2030.

As the clean energy transition continues, solar batteries will play a vital role in shaping the future of sustainable power in the United States.

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Pawan Kumar, the CEO of Allied Market Research, is leading the organization toward providing high-quality data and insights. We are in professional corporate relations with various companies and this helps us in digging out market data that helps us generate accurate research data tables and confirms utmost accuracy in our market forecasting. Each and every data presented in the reports published by us is extracted through primary interviews with top officials from leading companies of domain concerned. Our secondary data procurement methodology includes deep online and offline research and discussion with knowledgeable professionals and analysts in the industry.

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