

United States Renewable Energy Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 95 pages | Mordor Intelligence

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Report description:

The US renewable energy market is expected to register a CAGR of more than 6% during the forecast period, 2022-2027. With the COVID-19 outbreak in Q1 of 2020, the US renewable energy market witnessed a negative impact on energy systems by curbing investments and threatening to slow the expansion of key clean energy technologies and project delays. Factors such as increasing solar and wind energy installations over the period, supportive government policies, declining solar panel costs, and additional subsidies on renewables are expected to drive the renewable energy market during the forecast period. However, factors like a booming natural gas market that is competing with renewable energy and the limited energy supply from variable renewable energy sources are a few restraining factors for the United States renewable energy market during the forecast period.

Key Highlights

Solar energy in the United States is expected to witness significant growth, owing to the increased installations and consumption of solar energy.

The US government has announced the framework to invest USD 555 billion in funding for clean energy programs. This is expected to act as an opportunity for the renewable energy market in the country.

Declining solar panel costs are expected to drive the country's renewable energy market during the forecast period.

US Renewable Energy Market Trends

Solar Energy to Witness Significant Growth

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Solar energy is more affordable, accessible, and prevalent in the United States than ever before. This is due to the declining average cost of solar PV panels by nearly 80% in recent years. The solar energy segment is maturing rapidly around the country since solar electricity is now economically competitive with conventional energy sources in most states.

According to the Solar Energy Industries Association of the United States, solar PV installed capacity in the United States reached 96.18 GW in 2020, representing an increase of about 26% compared to the previous year's value. The utility solar PV sector has more than 11.2 GW of under-construction projects, putting the market on pace to hit 17.5 GW of annual capacity additions. The residential solar installations exceeded 1 GW and more than 130,000 systems in a single quarter for the first time in the industry's history.

As per Energy Information Administration (EIA) 2021, solar energy accounted for about 11% of US renewable energy consumption in 2020. Overall, in 2020, US solar consumption increased by 22% from 2019. Solar energy accounted for 3% of US electricity generation from all sources in 2020.

According to EIA's Solar Futures Study, the United States aims to achieve 40% of its electricity from solar energy by 2035. The study focuses on powering all homes with solar energy and employ over 1.5 million people by 2035. To achieve the 40% target, including installing 30 GW per year of solar capacity between 2021 and 2025 and 60 GW per year between 2025 and 2030.

In March 2021, the United States Department of Energy (DOE) announced ambitious targets to reduce the cost of solar energy by 60% in the next ten years. DOE has funded around USD 128 million to lower costs, improve performance, and speed the deployment of solar energy technologies by 2030.

Therefore, increasing investments and ambitious projects like Gemini Solar Project (896 MW) and Misae 2 (692 MW) are expected to drive the US renewable energy market during the forecast period.

Declining Solar Panel Costs Driving the Market Demand

Since the last decade, the average cost of a solar PV panel has dropped globally by nearly 90%. Prices of other components have also fallen significantly since 2011, reducing the Levelized Cost of Electricity (LCOE) for both residential and utility-scale solar PV generation.

Due to a combination of techno-economic and geopolitical factors, it is estimated that the rate of decline of solar PV panel prices is going to reduce slightly, but prices will continue to decline during the forecast period.

According to the United States National Renewable Energy Laboratory (NREL), since 2010, there has been a 64%, 69%, and 82% reduction in the cost of residential, commercial-rooftop, and utility-scale PV systems in the United States, respectively.

Due to the decline in prices, many residential and commercial consumers are opting for rooftop solar PV systems to reduce energy costs and recovery time. Similarly, for large-scale utility project operators, lower panel costs enable them to sign Power Purchase Agreements (PPA) with consumers at a lower cost.

Over the past decade, the efficiency of solar PV panels has been rising steadily, and with the emergence of new technologies and manufacturing capabilities, this trend is expected to continue during the forecast period. The most efficient solar panels commercially available in the market currently have efficiency ratings as high as 22.8%, whereas most panels range from 16% to 18% efficiency rating.

As of January 2022, SunPower's monocrystalline solar PV panels had the highest efficiency rating of any commercially available solar panel brand in the market. In April 2020, NREL announced that its six-junction solar cell had achieved a record 47.1% solar conversion efficiency, the highest in the world.

Therefore, owing to the above points, falling costs and increasing efficiencies of solar panels are expected to drive the country's renewable energy market during the forecast period.

US Renewable Energy Market Competitor Analysis

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The US renewable energy market is fragmented. The key players in the market include Vestas Wind Systems AS, Siemens Gamesa Renewable Energy SA, General Electric Company, First Solar Inc., and Sunrun Inc.

Additional Benefits:

The market estimate (ME) sheet in Excel format

3 months of analyst support

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