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United States Photovoltaics Market Assessment, By Type [Monocrystalline Silicon, Polycrystalline Silicon, Thin Film Cells and Organic Photovoltaics], By Grid Type (On grid, Off grid and Hybrid), By Installation [Ground Mounted, Roof Mounted, Building-integrated Photovoltaics (BIPV) and Floating Photovoltaics], By Application [Solar Farms, Electronic Devices, Healthcare Facilities, Public Infrastructure, Aerospace, Construction, Military and Defence, Transportation and Others], By End-user [Residential, Commercial & Industrial and Utility], and By Region, Opportunities, and Forecast, 2016-2030F

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Abstracts

The Photovoltaics (PV) market in the United States is experiencing notable advancements as the country has been actively encouraging the use of renewable energy, such as solar power, to address its increasing electricity needs. The United States photovoltaics market is projected to reach USD 46.29 billion by 2030 from USD 12.54 billion in 2022 with a CAGR of 17.73%. The significant growth of the market is being driven by various factors, such as a substantial decrease in equipment expenses due to the increased number of solar PV installations in California and Texas, subsidies and favourable regulations provided by the government in the United States coupled with a notable increase in the establishment of solar parks.

Over the last few years, the number of solar PV installations in the United States has

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been increasing at an exponential rate owing to declining costs, government support, environmental concerns, technological advancements, job creation, and market competition. The decreasing costs of solar technology, along with government incentives and policies, have made solar installations more affordable and attractive. Growing awareness of climate change and the need for clean energy has also driven the demand for solar power.

As per Solar Energy Industries Association (SEIA), in 2022, the United States witnessed the installation of 20.2 gigawatts (GW) of solar PV capacity, bringing the total installed capacity to 142.3 GW. This amount is sufficient to power around 25 million American homes. Solar energy contributed to 50% of all new electricity-generating capacity added in the country, marking the highest annual share in the history of the industry. Furthermore, solar maintained its position as the leading technology for new electric capacity installations for the fourth consecutive year. Residential solar installations reached a record-breaking year, with nearly 6 GW installations, showcasing a remarkable growth of 40% compared to 2021.

Rise in the adoption rate of Floating Solar Panels

Over the past few years, the adoption rate of floating solar panels is increasing exponentially the United States has numerous water bodies, including reservoirs, lakes, ponds, and wastewater treatment facilities, which provide ample space for floating solar panel installations. These installations allow for efficient land use and the utilization of underutilized or unused water surfaces. In 2022, Duke Energy, one of the leading organizations for solar power in the United States, announced that it has installed the largest floating solar power plant at Fort Bragg, North Carolina. The installation of this 1.1 megawatts (MW) solar facility is a component of a USD 36 million utility energy service contract aimed at enhancing energy resilience and security of the US armed forces at Fort Bragg in North Carolina. The contract encompasses various upgrades such as infrastructure modernization, improvements to lighting and water systems, enhancements to heating, ventilation, and air-conditioning, as well as boiler system improvements. Hence, from the above-mentioned facts it can be delineated that the advent of floating solar panels has indeed accelerated the growth rate of the market extensively.

Continued Demand from the Residential Sector

The residential sector continues to create huge demand for PV driven by rising household electricity bills, power outages, and low financing costs. There were 2,025

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MW of solar PV installations in California alone, which is an increase of 40% to the installations in 2021. 16 states in the country generated more than 5% of their e lectricity through solar panels with California leading the market with more than one-fourth of the total electricity generation.

On the other hand, the commercial sector offers great opportunities to solar PV manufacturers. As there is less than 1% of commercial electricity demand which is served by on-site solar.

Introduction of the SunShot Initiative by the Government

The United States government is placing significant emphasis on advancing the technology of solar photovoltaic (PV) systems and is making substantial investments in this area. Additionally, the government has introduced multiple policies aimed at enhancing and promoting the growth of the solar PV market in the coming years. The Department of Energy (DOE), on Feb 4th, 2011, launched the SunShot Initiative with the goal of reducing the overall expenses associated with solar energy by 75 percent. The objective was to make solar power economically competitive on a large scale, without relying on subsidies, by the end of the decade. In 2017 , it was announced that the initiative successfully $0.06 per kilowatt before the timeline and it further aims to bring it down to $0.03 per kilowatt by 2030, making it the least expensive option for new power generation.

Impact of COVID-19

The pandemic led to disruptions in the PV supply chain, labor shortages, and restrictions on construction activities, resulting in a slowdown in PV installations in the United States. Many projects faced delays or cancellations, as a result of which the growth of the PV market was adversely affected. Moreover, in some states like California, Texas, etc. local governments adjusted their policies and incentives due to budget constraints caused by the pandemic. This included changes in solar incentives, rebate programs, and net metering policies, which affected the attractiveness of PV installations.

Overall, the COVID-19 pandemic had a negative impact on the nation’s photovoltaics market, causing disruptions in installation activity, affecting investment, and financing, and leading to adjustments in policies and incentives. However, the growing recognition of the importance of resilient and sustainable energy systems could contribute to the long-term recovery and future growth of the PV market in United States.

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Key Players Landscape and Outlook

The United States photovoltaic market is undergoing substantial expansion, leading international companies to prioritize quality and brand positioning to retain their market share and expand their global presence. These companies are increasing their investments in research and development, marketing, and expanding their distribution networks. Manufacturers are actively analyzing consumer behavior to gain better insights into their preferences, enabling them to introduce new products that align with customer demands.

On May 2023, First Solar , Inc. enhanced its position as a global leader in thin film photovoltaics through the acquisition of Evolar AB, a prominent European company specializing in perovskite technology. The acquisition involved a payment of approximately USD 38 million upon closing, with an additional potential payment of up to USD 42 million contingent upon achieving specific technical milestones in the future.

On Oct 2022, Solaria Corporation, a producer of photovoltaic modules in the United States, announced its intention to merge with Complete Solar, a prominent solar PV manufacturer. The merged entity, known as Complete Solaria, aimed to offer a comprehensive range of services encompassing the entire solar system lifecycle, including design, installation, and financing.

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