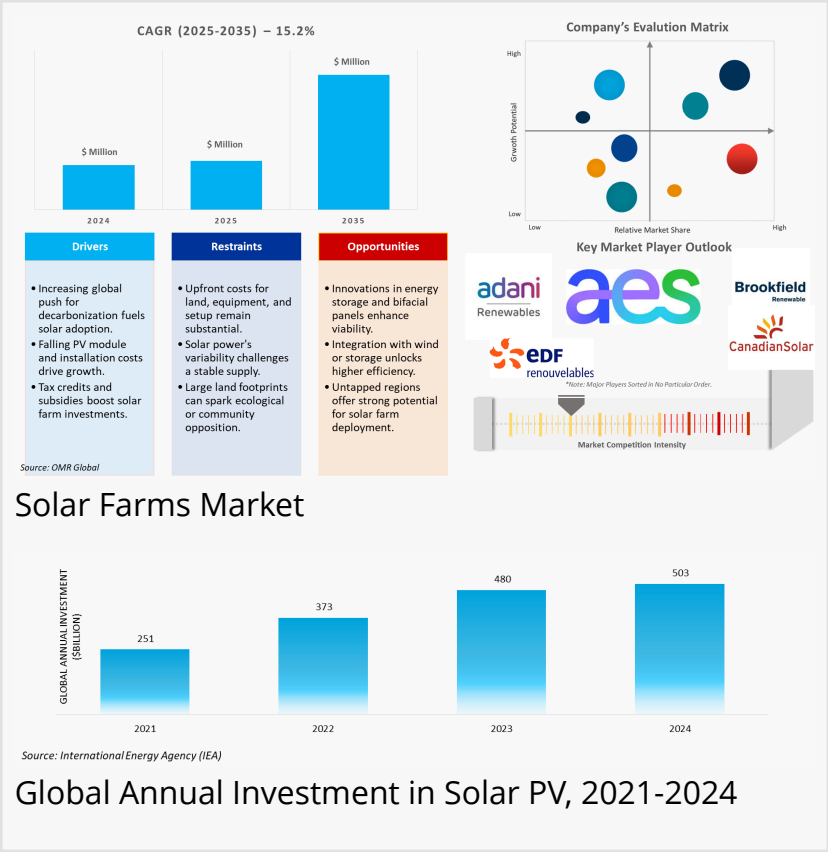
Solar Farm Market to Hit $85.2B in 2024, Growing at 15.2% CAGR Through 2035

Rising energy security concerns and declining solar panel costs are driving global investments in solar farms.



Solar Farms Market

Source: International Energy Agency (IEA)

Global Annual Investment in Solar PV, 2021-2024

INDORE, INDIA, May 21, 2025 /EINPresswire.com/ -- Solar farms market was valued at $85,219 million in 2024 and is projected to grow at a CAGR of 15.2% during the forecast period (2025-2035). The solar farm market is undergoing strong growth owing to the global demand for clean and renewable energy sources. The governments in most parts of the globe are establishing incentives and policies encouraging the use of solar power. Environmental awareness and greenhouse gas emissions concerns have played a crucial role in initiating the shift towards the use of solar energy. Technological progress has made solar panels increasingly cost-effective and efficient. As a result, large-scale solar arrays have become increasingly suitable for both public and private companies. The declining cost of photovoltaic systems is further boosting the market prospects. Energy security and reduced fossil fuel dependence are powerful investment drivers for solar farms. Most utility firms are diversifying their renewable energy offerings to help achieve regulatory goals. Vast land assets available in many countries provide the impetus for the setting up of solar farms.

According to the International Energy Agency (IEA), in 2024, Power sector investment in solar photovoltaic (PV) technology is projected to exceed $500 billion in2024, surpassing all other generation sources combined. Although growth is expected to slow down somewhat in 2024 owing to declining prices of PV modules, solar is the central sector's revolution. For every dollar spent on solar PV and wind in 2023, 2.5 times more energy production was achieved compared to a dollar spent on the same technologies ten years earlier.

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Market Trends

Extension of Floating Solar Farms (Floatovoltaics)

The solar farm market is growing quite significantly, mostly owing to the invention of floating solar farms or floatovoltaics. This innovative technology makes it possible to deploy solar panels on water bodies such as lakes, reservoirs, and ponds, and it is a great choice for areas with limited land space. Floatovoltaics reduce water evaporation, enhance panel efficiency through cooling effects, and occupy unused water surfaces. The need for green energy, combined with positive government initiatives and ecological awareness, is pushing the installation of floating solar farms globally. Such systems are especially beneficial in populated areas where land is expensive. Technological developments in floating platforms as well as in anchoring systems have improved the feasibility of such plants. For instance, Sembcorp Industries' Tengeh Reservoir floating solar power plant in Singapore. It is a 60 MW power plant and one of the biggest globally, an inland floating solar farm, supplying Singapore's national water agency.

Implementation of Advanced Energy Storage Solutions

The global solar farms market is undergoing immense growth, owing to the use of edge-energy storage technology. The technology allows solar farms to smooth out the unpredictability of solar energy by storing excess energy during sunny or peak load situations. By maximizing grid stability and power quality, energy storage systems bring industrial-scale solar farms within the realm of feasibility and affordability. Hybrid solar-plus-storage systems are being increasingly adopted by utilities and industries to meet the targets of sustainability and reduce the use of fossil fuels. Through the combination of flow batteries, lithium-ion batteries, and other innovative technologies, solar farms are more consistent sources of power. Governments across the globe are also encouraging such developments through incentives and policy conditions favorable towards the storage of renewable energy. Furthermore, reduced costs of storage systems also render them more appealing to developers and investors within the solar energy market. One such prime example of this trend is Tesla, Inc., which provides industrial solar farm solutions in conjunction with its Megapack energy storage systems. The Megapack is built to capture large quantities of solar energy and emit it as required, maximizing the efficiency of solar installations.

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Regional Outlook

Strong Presence of Key Market Players in North America

The North America solar farms market is experiencing sustainable growth driven by a combination of technology advancements and supporting regulatory frameworks. Government incentives such as investment tax credits and renewable energy standards are fueling the development of giant solar farms. According to the the US Department of Energy National Renewable Energy Laboratory (NREL), in January 2025, National Renewable Energy Laboratory (NREL) and Aaron Levine, an NREL senior legal and regulatory analyst, first calculated exactly how much energy would be produced from floating solar panel projects installed on federally owned or regulated reservoirs. Reservoirs may be able to accommodate as many floating solar panels as can produce as much as 1,476 terawatt hours, or enough energy to supply about 100 million homes annually. The cost of photovoltaic panels has decreased, and solar power is now a viable option to fossil fuels. The power companies in the region are now adding solar farms to their power mix in an effort to achieve clean energy targets. Additionally, increased environmental concern is forcing both the public and private sectors to turn towards clean power sources.

Asia-Pacific Holds Major Market Share

Asia Pacific solar farms market is witnessing strong growth, led mainly by growing government efforts towards the adoption of renewable energy. The industrialization and urbanization in nations such as China, India, and Australia have accelerated the need for sustainable power solutions. The decline in the cost of solar photovoltaic (PV) modules has also made solar power economically viable in the region. Favorable policies, subsidies, and tax credits provided by regional governments are driving an expansion of the market. Increasing environmental pressures and carbon-reduction commitments have accelerated private and public investment in solar assets. Improvements in the efficiency of solar panels and the evolution of energy storage technologies enhance the general solar farm viability. Furthermore, the increasing availability of smart grid systems enables increased control over the generation and delivery of solar power. Foreign direct investments and public-private partnerships are playing their role in the development of infrastructure for the sector. Rural electrification projects in emerging economies are fueling the installation of utility-scale solar farms.

Market Segmentation and Growth Areas

Utility-Scale Segment is Expected to Dominate the Market, Holding the Largest Share

The solar farms market is gaining significant traction, primarily owing to the growing use of utility-scale solar installations. Utility-scale solar farms, producing high levels of electricity to feed into the grid, are at the core of national clean power strategies. According to the Solar Energy Industries Association (SEIA), in March 2025, the utility-scale segment installed a record-breaking 41.4 Gigawatts direct current (GWdc) in 2024, 33.0% year-over-year growth and the second consecutive annual record. Developers installed more than 16 GWdc in Q4 alone. More than a quarter of the nation’s capacity was installed in Texas. This is buoyed by advanced photovoltaic

technology, promoting increased efficiency and more energy yield. Grid parity in most locations has rendered solar power as economical as conventional power sources. Additionally, advanced storage technologies have removed the problem of intermittency and made solar energy more viable. Government policies aiming to reduce emission are supporting solar power infrastructure investments. Low-carbon economy shifts are compelling the utility players to embrace solar as a vital portion of their power generation mix. Long-term PPAs ensure returns to investors in utility-scale plants. Provision of adequate land in rural and semi-urban areas makes it possible to have big solar farms without significant displacement. Regulatory support through incentives and effective permitting is facilitating quicker project rollout. Technology such as bifacial panels and solar tracking systems is enabling the optimal generation of power. The scale of such projects makes them a favorite among big companies that wish to counter their carbon footprint. Institutional investors are increasingly committing capital to utility-scale projects as their returns are stable.

Market Limitations and Challenges

- Large Upfront Capital Investment

Despite falling costs of solar panels, setting up a solar farm also involves enormous initial investments in land acquisition, installation, inverters, and electrical connections. This can limit entry, especially for developing nations or smaller players.

- Environmental and Ecological Impact

Large solar installations disturb local ecosystems, affect wildlife habitat, and create issues like compaction of soils or water run-off. Environmental impact assessments and mitigation measures can push project timelines back and contribute to compliance expenses.

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Market Players Outlook

The major companies operating in the global solar farms market include Adani Group (Adani Green Energy Ltd.), AES Corp., Brookfield Corp. (Brookfield Renewable Partners LP), Canadian Solar Inc., and EDF Renewables, among others. Market players are leveraging partnerships, collaborations, mergers, and acquisition strategies for business expansion and innovative product development to maintain their market positioning. One such company that has solar farm products is First Solar, Inc. The company offers next-generation photovoltaic (PV) solar modules, utility PV power plants, and ancillary services like project development, engineering, procurement, and construction (EPC), and operations and maintenance (O&M) for solar power systems.

Recent Developments

- In February 2025, an Asian Rated-4 datacenter provider CtrlS Datacenters Ltd commissioned

its captive solar farm 'GreenVolt 1' in Nagpur, Maharashtra. Phase I of a 62.5 MWp capacity solar farm has already in operation since June 2024, and Phase II of 62.5 MWp additional capacity is being implemented. CtrlS spent over a year in R&D to optimize the project and comply with all the regulations. With over 1GW of renewable energy capacity planned by 2030 under ambitious development strategies in India, with major current investments in Maharashtra, Uttar Pradesh, and Karnataka, CtrlS is dedicated to reducing carbon footprints and promoting the use of renewable energy.

- In February 2025, Matrix Renewables, a TPG Rise-backed global renewable energy platform, closed an excellent €40 million ($40.9 million) non-recourse facility with UniCredit to finance the construction and development of six solar photovoltaic (PV) power plants. The solar plants, distributed strategically over the regions of Lombardia, Campania, and Sicily, have a combined installed capacity of 40 MW and contribute significantly towards renewable power production and reduced carbon emissions. Once operational, the portfolio is expected to generate enough clean energy to power approximately 27,500 Italian households annually.
- In January 2025, Lightsource bp completed the 187-megawatt Peacock Solar project, a solar farm located in San Patricio County, TX, that will provide power directly to Gulf Coast Growth Ventures' nearby manufacturing complex. The Peacock Solar project, constructed, developed, and owned by Lightsource bp, advances the transition to a lower-carbon world while generating economic and community benefits. The solar farm generated more than 300 construction jobs on site and is forecast to pay over $25 million in taxes over 25 years.
- In September 2024, TotalEnergies began commercial operations of Danish Fields and Cottonwood, two utility-scale solar farms with batteries, in southeast Texas. The new projects, combined capacity of 1.2 GW, are one of a portfolio of 4 GW of renewable assets in operation or development in Texas. Danish Fields is TotalEnergies' largest solar farm in the US, with a capacity of 720 MWp and 1.4 million ground-mounted photovoltaic panels. Danish Fields also features a 225 MWh battery storage system supplied by Saft, the battery subsidiary of TotalEnergies.
- In August 2024, DSD Renewables (DSD) partnered with General Energy Corporation to deploy a 1.54 MW portfolio of rooftop solar projects across three park districts in Illinois. The installations, located in Elmhurst, Sycamore, and Urbana, are estimated to generate approximately 1.8 GWh of solar energy each year that can be used to power operations and reduce the carbon footprint. These projects incorporate solar energy into Illinois' park districts at a new scale, setting a standard for sustainable practices in public spaces across the state and nationwide.

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Some of the Key Companies in the Solar Farms Market Include-

- Cypress Creek Renewables, LLC
- Enel Green Power S.p.A.
- First Solar, Inc.
- GruppoSTG
- Iberdrola, S.A.
- ib vogt GmbH

- Invenergy LLC
- Ja Solar Holdings Co. Ltd
- JinkoSolar Holding Co., Ltd.
- Sharp Corp.
- Shenzhen Topray Solar Co., Ltd.
- SunPower Corp.
- Tata Power Solar Systems Ltd
- Trina Solar
- TotalEnergies SE

Solar Farms Market Segmentation Analysis

Global Solar Farms Market by Type
- Utility-Scale
- Community Scale
- Distributed Generation
- Microgrids
- Others (Agrovoltaic Systems, Floating Solar Farms)

Global Solar Farms Market by End-User
- Residential
- Commercial
- Industrial

Regional Analysis
- North America
  - United States
  - Canada
- Europe
  - UK
  - Germany
  - Italy
  - Spain
  - France
  - Rest of Europe
- Asia-Pacific
  - China
  - India
  - Japan
  - South Korea
  - ASEAN Economies (Singapore, Thailand, Vietnam, Indonesia, and Other)
  - Australia and New Zealand
  - Rest of Asia-Pacific

- Rest of the World
  - Latin America
  - Middle East and Africa

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