

Solar Farms in Agriculture Market Forecasts to 2034 – Global Analysis By Farm Type (Crop Farms, Livestock Farms and Mixed Farms), Solar Technology, Ownership Model, Installation Type, Application and By Geography

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Abstracts

According to Statistics MRC, the Global Solar Farms in Agriculture Market is accounted for \$6.0 billion in 2026 and is expected to reach \$48.9 billion by 2034 growing at a CAGR of 30.0% during the forecast period. Solar farms in agriculture combine energy generation with traditional farming practices, offering a sustainable and efficient land-use model. Through the installation of solar panels on farmland, agricultural producers can produce electricity while still engaging in activities like crop growth or animal grazing in the same space. Known as agrivoltaic systems, this method enhances productivity, diversifies farmer revenue, and decreases reliance on fossil fuels. Moreover, it supports environmental conservation by reducing carbon emissions and encouraging the use of renewable energy. Increasing government incentives and private investments are accelerating the adoption of solar farming as a forward-looking agricultural strategy.

According to REN21, the agriculture sector consumed 2.5% of global total final energy in 2022, with renewables making up 17.8% of agricultural energy use, highlighting the growing role of solar PV in farming.

Market Dynamics:

Driver:

Increasing demand for renewable energy in agriculture

The growing need for clean energy solutions in agriculture significantly boosts the adoption of solar farms. With rising electricity expenses and increasing environmental awareness, farmers are turning to sustainable energy sources to operate irrigation, equipment, and storage systems. Solar power offers an efficient and affordable alternative, helping reduce reliance on conventional fuels and centralized power grids. This transition also supports international climate initiatives and promotes environmentally responsible farming practices. Furthermore, supportive government policies, financial incentives, and educational efforts are accelerating the use of solar technologies, establishing renewable energy as a crucial element in the evolution of modern agriculture.

Restraint:

High initial investment costs

The substantial upfront costs associated with setting up solar farms act as a major barrier to their adoption in agriculture. Farmers must invest heavily in equipment such as solar panels, power converters, support structures, and grid integration systems. This financial burden is particularly challenging for small and mid-sized agricultural producers who often lack sufficient funding or access to loans. Additional expenses related to installation, upkeep, and land modification further discourage investment. While certain governments provide financial assistance, these incentives are not always enough to cover initial costs, thereby hindering the expansion and acceptance of solar energy solutions in agricultural sectors.

Opportunity:

Government incentives and policy support

Supportive government policies and financial incentives offer significant growth potential for solar farms within the agricultural sector. Authorities across the globe are encouraging the shift to renewable energy by providing tax advantages, subsidies, grants, and accessible funding schemes for farmers and project developers. These measures lower the initial investment challenges and make solar installations more feasible. Furthermore, well-defined regulations and ambitious clean energy goals foster an enabling environment for agrivoltaic solutions. As sustainability becomes a priority, continued governmental backing is likely to accelerate adoption and promote advancements in solar-based farming systems worldwide.

Threat:

Fluctuating government policies and incentives

Unpredictable changes in government regulations and incentive programs represent a major threat to the growth of solar farms in agriculture. Variations in subsidies, tax policies, and renewable energy goals can significantly influence the economic feasibility of such projects. This lack of policy stability often makes farmers and investors hesitant to invest in solar installations. Moreover, reductions or discontinuation of financial support can extend return periods and lower profitability. The resulting uncertainty disrupts project development and long-term planning. Since the sector depends on consistent policy backing, any abrupt changes may negatively affect adoption rates and overall market expansion.

Covid-19 Impact:

The solar farms in agriculture market experienced both challenges and opportunities due to the COVID-19 outbreak. Early in the pandemic, disruptions in global supply chains and strict lockdown measures hindered the production and deployment of solar equipment. Workforce limitations and logistical constraints also delayed ongoing and planned projects. Nevertheless, the crisis underscored the need for reliable and sustainable energy sources, prompting greater interest in renewable solutions among farmers and policymakers. With economic recovery efforts emphasizing environmentally friendly development, the adoption of solar farming accelerated. Despite initial disruptions, the market showed resilience and witnessed stronger growth during the recovery phase.

The crop farms segment is expected to be the largest during the forecast period

The crop farms segment is expected to account for the largest market share during the forecast period because of their vast land resources and suitability for solar integration. The wide, open spaces typically used for growing crops make it easier to install solar panels without hindering agricultural activities. With agrivoltaic approaches, crops can be cultivated under or around solar structures, enhancing overall land efficiency and generating extra revenue for farmers. Additionally, crop farming operations require substantial energy for irrigation and storage, making solar power an effective alternative. These factors collectively encourage greater adoption of solar systems within crop farming environments.

The irrigation & water pumping segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the irrigation & water pumping segment is predicted to witness the highest growth rate, driven by the rising demand for efficient water usage and increasing energy expenses. Farmers are increasingly turning to solar-powered pumps to minimize reliance on conventional fuels and inconsistent electricity supply. These systems provide economic advantages, operational simplicity, and eco-friendly benefits, enhancing their appeal. Supportive government initiatives and financial incentives are further boosting their adoption. Moreover, the emphasis on sustainable farming practices and water resource management is contributing to the rapid growth of this segment across agricultural sectors.

Region with largest share:

During the forecast period, the Asia-Pacific region is expected to hold the largest market share, supported by its extensive agricultural activities, abundant sunlight, and proactive government initiatives encouraging renewable energy use. Many countries in this region are implementing policies, incentives, and rural development programs to integrate solar solutions into farming practices. Growing energy requirements for irrigation and other agricultural processes also fuel the demand for solar systems. Furthermore, increasing focus on environmentally sustainable farming and reducing greenhouse gas emissions enhances adoption rates. Combined, these elements make Asia-Pacific the leading region in the expansion and development of solar-powered agricultural systems.

Region with highest CAGR:

Over the forecast period, the Rest of the World (RoW) region is anticipated to exhibit the highest CAGR, driven by rising investments in renewable energy and the need for sustainable farming practices. Abundant sunlight availability makes the region highly suitable for solar power generation. Governments are increasingly encouraging solar-based irrigation and agricultural systems to tackle water shortages and reduce reliance on conventional energy sources. Rapid population growth, food security challenges, and rural electrification efforts also contribute to market expansion. Moreover, international support and funding initiatives are further accelerating the adoption of solar farming technologies across the region.

Key players in the market

Some of the key players in Solar Farms in Agriculture Market include Enel Green Power, Next2Sun Technology GmbH, BayWa AG, TotalEnergies SE, SunAgri, Ombrea, Agrivoltaic Solution LLC, REM TEC, Boralex, Silicon Ranch, Suntech Power Holdings, JA Solar Holdings Co. Ltd., Insolight SA, diveo GmbH, Mackin Energy, Sunrise Power Solutions, Namaste Solar and SunSeed APV Private Limited.

Key Developments:

In April 2026, TotalEnergies and Masdar have signed a binding agreement to establish a \$2.2 billion joint venture aimed at expanding renewable energy capacity in nine countries across Asia. The joint venture will have a portfolio capacity of 3 GW of operational assets and 6 GW of assets in advanced development, which are expected to be operational by the end of the decade.

In October 2025, Enel and Masdar complete the partnership agreement signed in March 2025 for 446 mw of photovoltaic plants operating in Spain. This transaction, which follows the partnership with Masdar finalized relating to a 2 GW portfolio of other solar assets already operating in Spain, is in line with the “Partnership” business model outlined by Enel in its 2025-2027 Strategic Plan with the aim to retain control of strategic assets while maximizing productivity and returns on invested capital.

Farm Types Covered:

Crop Farms

Livestock Farms

Mixed Farms

Solar Technologies Covered:

Photovoltaic (PV) Panels

Concentrated Solar Power (CSP)

Hybrid Solar Systems

Ownership Models Covered:

- Individual Farmers
- Cooperatives & Community-Owned
- Corporate & Commercial Farms
- Government & Institutional Projects

Installation Types Covered:

- Ground-mounted Solar Farms
- Rooftop & Building-integrated Systems
- Floating Solar on Farm Reservoirs

Applications Covered:

- On-farm Electricity Generation
- Irrigation & Water Pumping
- Greenhouse Heating & Cooling
- Storage & Processing Facilities

Regions Covered:

- North America
 - United States
 - Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

What our report offers:

Market share assessments for the regional and country-level segments

Strategic recommendations for the new entrants

Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034

Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)

Strategic recommendations in key business segments based on the market estimations

Competitive landscaping mapping the key common trends

Company profiling with detailed strategies, financials, and recent developments

Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

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