

Solar Powered Irrigation System Market Size & Share Analysis - Growth Trends and Forecast (2026 - 2031)

> ****Industry:**** AgTech, Precision Farming & Irrigation (Agriculture & Agribusiness)
> ****Source:**** <https://www.mordorintelligence.com/industry-reports/solar-powered-irrigation-system-market>
> ****Scraped Date:**** 2026-09-17

Executive Market Summary

Market Metric	Details
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Base Market Size	USD 61.60 billion
Projected Forecast (2031)	USD 61.60 billion
Growth Rate (CAGR)	13.50 %
Largest Market Region	N/A
Fastest-Growing Region	N/A

Market Visualizations & Infographics

![Major players in Solar Powered Irrigation System industry](images/chart_2.png)

![Solar Powered Irrigation System Market Size](images/chart_3.png)

![Solar Powered Irrigation System Market Share by Irrigation System, 2025](images/chart_4.png)

![Solar Powered Irrigation System Market Share by Component, 2025](images/chart_5.png)

![Solar Powered Irrigation System Market Growth Rate by Region](images/chart_6.png)

![Solar Powered Irrigation System Market Concentration](images/chart_7.png)

![Icon](images/chart_8.png)

![footer background image](images/chart_10.png)

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Comprehensive Research Analysis

Overview Points List Flex 49 Share Feature End

Market Overview	Study Period 2021 - 2031
Market Size (2026)	USD 61.60 Billion
Market Size (2031)	USD 117.58 Billion
Growth Rate (2026 - 2031)	13.50 %
Fastest Growing Market	Africa
Largest Market	Asia Pacific

Market Concentration | Low |

Major Players*Disclaimer: Major Players sorted in no particular order

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Market Overview

Solar Powered Irrigation System Market Analysis by Mordor IntelligenceThe solar-powered irrigation system market was valued at USD 55.00 billion in 2025 and is projected to grow from USD 61.60 billion in 2026 to USD 117.58 billion by 2031, registering a CAGR of 13.5% during the forecast period (2026-2031). Declining photovoltaic module prices, advancements in cell efficiencies, and government incentives in countries such as India, Kenya, and China are reducing payback periods and driving adoption, despite rising wafer prices. In India, the 2026 budget nearly doubled the allocation for the PM-KUSUM scheme, leading to a significant increase in standalone pump installations. Furthermore, decreasing diesel subsidies and rising grid-electricity tariffs are improving the operating economics of photovoltaic pumps in regions such as sub-Saharan Africa and South Asia. The market remains fragmented, with regional specialists operating alongside multinational companies, which are increasingly focusing on data-driven agronomic services to sustain profitability.

Key Report Takeaways* By product type, submersible pumps led with the largest 54% of the solar powered irrigation system market share in 2025. The floating pumps market size is projected to expand at the fastest 19.3% CAGR from 2026 to 2031.

* By irrigation system, drip irrigation captured the largest 42.5% of the solar powered irrigation system market share in 2025. The drip irrigation market size is anticipated to advance at the fastest 18.7% CAGR from 2026 to 2031.

* By power rating (HP), systems up to 3 HP contributed the largest 48.3% of the solar powered irrigation system market share in 2025. Units above 10 HP will post the fastest 20.4% CAGR from 2026 to 2031.

* By component, solar panels accounted for the largest 35.2% of the solar powered irrigation system market share in 2025. The controllers market size is forecast to grow at the fastest 21.5% CAGR from 2026 to 2031.

* By end-user, smallholder farms held the largest 61% of the solar powered irrigation system market share in 2025. Commercial farms market size projected to grow at the fastest 16.2% CAGR from 2026 to 2031.

* By geography, Asia-Pacific controlled the largest 45.1% of the Solar Powered Irrigation System market share in 2025, and Africa market size is record to grow at the fastest CAGR of 17.9% from 2026 to 2031.

Key Market Trends

Market Trends and InsightsDrivers Impact Analysis of Solar Powered Irrigation System Market*Driver | (~) % Impact on CAGR Forecast | Geographic Relevance | Impact Timeline |

Declining photovoltaic module prices and rising efficiency | +2.8% | Global, strongest in Asia-Pacific and sub-Saharan Africa | Medium term (2-4 years) |

Government subsidies and incentive programs | +3.2% | India, Kenya, China, Mediterranean Europe, Middle East and North Africa | Short term (≤ 2 years) |

Escalating diesel and grid-electricity costs | +2.5% | South Asia, sub-Saharan Africa, South America, Middle East | Short term (≤ 2 years) |

Agrivoltaic dual-land-use adoption | +1.8% | India, China, Mediterranean Europe, arid Middle East | Long term (≥ 4 years) |

Pay-as-you-grow equipment leasing via carbon-credit revenues | +1.5% | East Africa, West Africa, South Asia | Medium term (2-4 years) |

AI-driven pump-sizing optimization tools | +1.2% | North America, Europe, Asia-Pacific, smallholder cooperatives globally | Long term (≥ 4 years) |

Source: Mordor Intelligence |

Competitive Landscape

Competitive Landscape

Market concentration remains fragmented, with key players such as Grundfos Holding A/S, Bernt Lorentz GmbH and Co. KG, Shakti Pumps (India) Limited, Tata Power Solar Systems Limited, and Franklin Electric Co., Inc. significantly influencing the competitive landscape. Key players are combining solar pumps with drip irrigation systems, fertigation units, and remote monitoring platforms to provide comprehensive farm solutions. This approach facilitates recurring revenue streams through maintenance services, software subscriptions, and performance monitoring. Additionally, companies are prioritizing product standardization and modular designs to streamline installation and minimize deployment time.

Technological differentiation is increasingly focused on smart controllers, automation, and digital monitoring solutions aimed at improving operational efficiency. Companies are investing in advanced inverters and intelligent control systems to optimize pump performance based on solar irradiance and irrigation requirements. Companies are prioritizing the combination of solar and hybrid pumping technologies to improve irrigation reliability and energy efficiency. In 2023, Xylem Inc. entered into a global distribution agreement with Bernt Lorentz GmbH & Co. KG to expand solar-powered pumping solutions in agricultural markets.

New entrants are targeting niche segments by providing flexible, modular, and cost-effective solutions designed to meet specific agricultural needs. Developments such as mobile solar irrigation units and pay-as-you-grow financing models are enhancing accessibility for smallholder farmers in developing regions. These approaches reduce upfront investment barriers, promoting wider adoption of solar irrigation technologies. The focus on customization, ease of installation, and innovative financing is influencing the competitive landscape of the market.

Solar Powered Irrigation System Industry Leaders* Grundfos Holding A/S

* Shakti Pumps (India) Limited

* Bernt Lorentz GmbH & Co. KG

* Franklin Electric Co., Inc.

* Tata Power Solar Systems Limited

* *Disclaimer: Major Players sorted in no particular order

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Component Component 3 Scope Of The Report Bottom

Global Solar Powered Irrigation System Market Report ScopeA solar powered irrigation system uses photovoltaic (PV) panels to generate electricity for operating water pumps, providing a sustainable and cost-effective alternative to diesel or grid-powered irrigation, especially in off-grid and remote farming areas. The solar powered irrigation system market report is segmented by product type (submersible pumps, surface pumps, floating pumps), irrigation system (drip irrigation, sprinkler irrigation, center pivot and lateral-move), power rating (up to 3 HP, 3.1 to 10 HP, above 10 HP), component (solar panels, pumps, controllers, and inverters), end-user (smallholder farms, commercial farms, greenhouses, livestock watering), and geography (North America, South America, Europe, Asia-Pacific, Middle East, and Africa). The market forecasts are provided in terms of value (US D).

By Product TypeSubmersible Pumps |
Surface Pumps |

Floating Pumps |

Segmentation Accordion Item

By GeographyNorth America | United States |

| Canada |

| Mexico |

| Rest of North America |

South America | Brazil |

| Argentina |

| Rest of South America |

Europe | Germany |

| France |

| United Kingdom |

| Russia |

| Rest of Europe |

Asia-Pacific | China |

| India |

| Japan |

| Australia |

| Rest of Asia-Pacific |

Middle East | Saudi Arabia |

| United Arab Emirates |

| Rest of Middle East |

Africa | South Africa |

| Kenya |

| Rest of Africa |

Frequently Asked Questions

What is the projected value of solar powered irrigation worldwide by 2031?

The market is forecast to reach USD 117.58 billion by 2031, expanding at a 13.5% CAGR from 2026 to 2031.

Why are floating pumps growing so quickly?

They post the fastest 19.3% CAGR because aquaculture ponds and floating photovoltaic arrays eliminate land-competition issues and curb evaporation losses.

Which region is projected to grow fastest through 2031?

Africa shows the fastest 17.9% CAGR, supported by solar irrigation adoption and Kenya's results-based financing initiatives.

Which product type currently dominates sales?

Submersible pumps lead with the largest 54% revenue share because they satisfy deep-well needs in India, Kenya, and Brazil.