

# **Pico-Solar Market Forecasts to 2032 – Global Analysis By Product Type (Pico-Solar Lanterns, Pico-Solar Chargers and Pico-Solar Radios), Technology, Application, End User and By Geography**

<https://marketpublishers.com/r/P1A0F0DB8E2BEN.html>

Date: April 2025

Pages: 150

Price: US\$ 4,150.00 (Single User License)

ID: P1A0F0DB8E2BEN

## **Abstracts**

According to Statistics MRC, the Global Pico-Solar Market is accounted for \$366.15 million in 2025 and is expected to reach \$938.95 million by 2032 growing at a CAGR of 14.4% during the forecast period. Pico-solar systems are off-grid, small-scale solar power solutions that are usually used to power small appliances, basic lighting, and phone charging. These systems are popular in rural and isolated locations with limited access to conventional electricity because they are small, affordable, and efficient. Photovoltaic (PV) panels with energy storage components like batteries are used in pico-solar products, like solar lanterns and portable solar chargers, to guarantee power availability at night or in overcast conditions

According to the Solar Energy Industries Association (SEIA), the U.S. solar capacity grew by 128% during President Donald Trump's first term in office.

Market Dynamics:

Driver:

Growing interest in off-grid power options

A sizable section of the world's population does not have consistent access to electricity, especially in South Asia, Africa, and Latin America. The International Energy Agency (IEA) estimates that more than 700 million people worldwide lack access to electricity, and many more frequently lose power. For homes, businesses, and

community services in these areas, pico-solar systems offer an economical and expandable solution. Frequently used for lighting, charging cell phones, and powering small appliances, these systems lessen dependency on costly and polluting alternatives like diesel generators and kerosene lamps. Additionally, demand is also being increased by the growing integration of off-grid solar solutions into rural electrification plans by NGOs and governments.

#### Restraint:

##### Limited product capabilities and energy output

Low-power uses like lighting and cell phone charging are the main focus of pico-solar systems. Their utility for many consumers is limited, though, because they are insufficient to power larger household appliances like electric stoves, televisions, and refrigerators. These systems are not appropriate for commercial applications that need a steady supply of energy due to their limited power capacity. Furthermore, small businesses in rural areas that depend on dependable power for operations might find that Pico-Solar solutions are not a good substitute for larger solar home systems (SHS) or conventional grid electricity.

#### Opportunity:

##### Growth of microfinance and pay-as-you-go (PAYG) models

Pico-Solar products are now more affordable for low-income customers who are unable to make upfront payments owing to the integration of PAYG systems and microfinance models. By enabling flexible installment payments, PAYG models lower financial barriers by enabling consumers to buy solar lanterns, phone chargers, and small solar home systems. Moreover, PAYG solutions have been successfully deployed in Africa and Asia by companies such as M-KOPA, and Greenlight Planet, reaching millions of households. More customers will have easier access to Pico-Solar solutions without significant financial burdens as digital financial services grow and mobile money usage rises.

#### Threat:

##### High levels of price pressure and market competition

Due to fierce competition brought on by the growing number of Pico-Solar producers

and distributors, businesses are being forced to reduce their prices in order to stay in business. Excessive price reductions can result in narrow profit margins, less investment in innovation, and lower-quality products, even though affordability is essential for market penetration. Furthermore, it is becoming more difficult for smaller companies to maintain market share in the off-grid solar market due to the entry of large-scale solar providers and energy companies. Price pressure and consumer discontent are exacerbated by the availability of low-quality, inexpensive imports from unregulated markets.

#### Covid-19 Impact:

The COVID-19 pandemic affected the pico-solar market in two ways: it increased demand for decentralized energy solutions while also upsetting supply chains. Essential components like solar panels, batteries, and semiconductors were in short supply as a result of manufacturing, shipping, and distribution delays brought on by lockdowns and restrictions. Due to supply chain bottlenecks and decreased consumer spending, many Pico-Solar businesses experienced financial difficulties. But the crisis also brought attention to the necessity of dependable off-grid power sources, especially in areas with poor access to electricity. Moreover, the need for Pico-Solar systems to power mobile devices, lighting, and small appliances increased as a result of the pandemic-driven shift to remote work, digital learning, and telemedicine in off-grid areas.

The pico-solar lanterns segment is expected to be the largest during the forecast period

The pico-solar lanterns segment is expected to account for the largest market share during the forecast period. These lanterns offer small businesses, schools, and homes without consistent access to electricity an economical and environmentally friendly lighting option. Because of their affordability, usability, and longevity, they are a desirable substitute for conventional kerosene lamps, lowering the risks to human health and the environment. International organizations, NGOs, and governments have backed extensive distribution initiatives, which have accelerated market expansion. Additionally, the growing need for portable, energy-efficient lighting options is driving the global uptake of Pico-Solar Lanterns.

The photovoltaic systems segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the photovoltaic systems segment is predicted to witness the highest growth rate. This expansion is fueled by the growing need for reasonably priced

off-grid energy options in rural and isolated locations, especially those without consistent access to electricity. Small-scale solar panels and associated parts make up photovoltaic systems, which allow users to capture solar energy for a range of uses, such as lighting, charging, and small appliance power. Furthermore, the market for these systems has grown significantly as a result of improvements in accessibility and adoption brought about by solar technology advancements and falling prices.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share. The region's sizable rural population, many of whom do not have consistent access to electricity, has encouraged the widespread use of Pico-Solar devices such as radios, chargers, and lanterns. Market penetration has also increased as a result of government initiatives, subsidies, and programs from institutions such as the World Bank and International Finance Corporation (IFC). Moreover, the strong growth and dominance of Asia-Pacific in this sector is also attributed to the presence of major manufacturers, falling solar panel costs, and rising awareness of the advantages of clean energy.

Region with highest CAGR:

Over the forecast period, the Middle East & Africa region is anticipated to exhibit the highest CAGR. fueled by the growing need for off-grid energy sources. Leading this growth are nations like Nigeria. Due to the region's sizable population's lack of access to dependable electricity, inexpensive and environmentally friendly pico-solar products like lanterns and chargers have become increasingly popular. Additionally, this expansion is further supported by international assistance and government initiatives that seek to advance renewable energy sources and increase energy accessibility.

Key players in the market

Some of the key players in Pico-Solar Market include Signify N.V., Fosera Solarsystems GmbH and Co. KGaA, M-KOPA Group, Panasonic Corp, Greenlight Planet Inc., d.light Limited, Powerfull Solar, Inc, Azuri Technologies, Shenzhen Power-Solution Ind Co., Ltd, Philips, AmeriGreen Solar Inc, First Solar (FSLR), Sun King Inc, Hunter Douglas Inc. and Yingli Green Energy Holding Co. Ltd.

Key Developments:

In July 2024, Panasonic Corporation announced that its Cold Chain Solutions Company has entered into an agreement with Cooling Solutions S.L. to purchase all the shares of its subsidiary Area Cooling Solutions Sp. z o.o. , a Polish refrigeration equipment manufacturer (hereinafter referred to as Area Cooling).

In January 2024, US thin-film photovoltaics (PV) maker First Solar Inc has signed a 167-MW captive power purchase agreement (PPA) to power its new factory in India. The 15-year contract is with Asian renewables supplier Cleantech Solar, which will build 150 MW of solar and 16.8 MW of wind assets in Tamil Nadu.

In March 2023, Signify announced the acquisition of Intelligent Lighting Controls, Inc. (ILC), a market-leading U.S. manufacturer of wired control systems, expanding its connected portfolio. Intelligent Lighting Controls' sales are primarily focused on energy-saving control systems in applications such as healthcare, education, offices, and sporting venues.

#### Product Types Covered:

Pico-Solar Lanterns

Pico-Solar Chargers

Pico-Solar Radios

#### Technologies Covered:

Photovoltaic Systems

LED Lighting Systems

#### Applications Covered:

Multi-Purpose

Single-Purpose

Other Applications

**End Users Covered:**

Residential

Commercial

Industrial

**Regions Covered:**

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & 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 2024, 2025, 2026, 2028, and 2032

- 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

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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