

Global Outdoor Solar LED Market Size Study, by Application, Wattage (Less than 39W, 40W to 149W, More than 150W), by End Use (Residential, Commercial, Industrial), and Regional Forecasts 2022-2032

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Abstracts

The global outdoor solar LED market, valued at approximately USD 7.7 billion in 2023, is projected to expand at a robust compound annual growth rate (CAGR) of 27.50% over the forecast period from 2024 to 2032. As the world intensifies its focus on sustainable energy solutions, outdoor solar LED technology has emerged as a crucial component of the global transition toward renewable energy sources. By harnessing solar power to illuminate public and private spaces, these advanced lighting solutions significantly reduce dependency on conventional energy grids while offering long-term cost savings and environmental benefits. The growing emphasis on energy efficiency, coupled with technological advancements in photovoltaic cells and battery storage, continues to propel the demand for outdoor solar LED systems.

The surge in global urbanization and infrastructure development has accelerated the adoption of solar-powered lighting solutions across residential, commercial, and industrial sectors. Governments and municipal bodies worldwide are increasingly investing in solar street lighting projects to enhance energy security and reduce carbon footprints. Additionally, financial incentives and regulatory support for solar energy adoption further bolster market expansion. Key industry players are focusing on developing highly efficient and cost-effective LED lighting solutions integrated with smart sensors and IoT-enabled systems, fostering a more connected and energy-efficient urban environment.

Despite the promising growth trajectory, the market faces certain challenges, including

high initial installation costs and the efficiency limitations of solar panels under adverse weather conditions. However, continuous research and development efforts are driving innovation in energy storage solutions and smart lighting technologies, mitigating these barriers and paving the way for wider adoption. The rising trend of off-grid solar lighting solutions in remote and rural areas also presents lucrative opportunities for market players, particularly in emerging economies where grid infrastructure remains inadequate.

The global outdoor solar LED market exhibits a strong regional presence, with North America and Europe leading in terms of market share, owing to stringent energy efficiency regulations and substantial government investments in sustainable urban development projects. Meanwhile, the Asia Pacific region is expected to witness the fastest growth rate, driven by rapid industrialization, urbanization, and increasing government initiatives to promote renewable energy adoption. Countries such as China and India are at the forefront of this expansion, with large-scale solar lighting deployments and significant advancements in solar panel manufacturing capabilities.

Major market players included in this report are:

Philips Lighting Holding B.V.

Cree, Inc.

Solar Electric Power Company (SEPCO)

OSRAM Licht AG

Sunna Design

Sol Inc.

Fonroche Lighting

Signify N.V.

Bridgelux, Inc.

Carmanah Technologies Corporation

SolarOne Solutions, Inc.

Gama Sonic USA, Inc.

Greenshine New Energy

Urban Solar Group

LEADSUN Global

The detailed segments and sub-segment of the market are explained below:

By Application:

Street Lights

Flood Lights

Pathway & Garden Lights

Area Lights

Others

By Wattage:

Less than 39W

40W to 149W

More than 150W

By End Use:

Residential

Commercial

Industrial

By Region:

North America

U.S.

Canada

Europe

UK

Germany

France

Spain

Italy

Rest of Europe

Asia Pacific

China

India

Japan

Australia

South Korea

Rest of Asia Pacific

Latin America

Brazil

Mexico

Rest of Latin America

Middle East & Africa

Saudi Arabia

South Africa

Rest of Middle East & Africa

Years considered for the study are as follows:

Historical year – 2022

Base year – 2023

Forecast period – 2024 to 2032

Key Takeaways:

Market Estimates & Forecast for 10 years from 2022 to 2032.

Annualized revenues and regional level analysis for each market segment.

Detailed analysis of geographical landscape with country-level analysis of major

regions.

Competitive landscape with information on major players in the market.

Analysis of key business strategies and recommendations on future market approach.

Analysis of the competitive structure of the market.

Demand-side and supply-side analysis of the market.

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