

Solar-Powered UAV Market by Type (Fixed Wing Drones, Multirotor Drones, Quadcopter Drones), Range (Less Than 300 KM, More Than 300 KM), Component (Propulsion System, Airframe, Guidance Navigation, Control System, Payload), Mode of Operation (Semi-Autonomous, Autonomous), Application (Defense, Commercial), and Region 2024-2032

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Abstracts

The global solar-powered UAV market size reached US\$ 368.1 Million in 2023. Looking forward, IMARC Group expects the market to reach US\$ 814.4 Million by 2032, exhibiting a growth rate (CAGR) of 8.95% during 2024-2032. The increasing demand for drone services for various commercial applications, the recent development of UAV drones for asset management, tracking enemies' movements and performing dangerous battlefield surveillance operations in the defense sector, and extensive research and development (R&D) activities represent some of the key factors driving the market.

Solar-powered unmanned aerial vehicle (UAV) refers to high-altitude pseudo-satellites or drones specially designed to receive power directly from the sun for performing continuous stratospheric operations for a longer duration. It can be operated autonomously without any human intervention even from a remote location by utilizing limitless propulsion systems. It further comprises a range of solar-powered cells that are unified with the vehicle to capture solar energy during the day and generate and recharge the battery on board to provide power in nighttime flights. As compared to traditional UAVs, it offers better stability, higher flight altitude, larger coverage area, and

superior load capacity. Along with this, it provides environmental protection, improves employee safety, monitors ecological damages, and minimizes the need for human transportation procedures. As a result, the solar-powered UAV finds extensive application in the surveillance and rescue operations, pollution monitoring, disaster management, attack missions, and intelligence-gathering operations.

Solar-Powered UAV Market Trends:

The increasing demand for drone services for various commercial applications, including resource exploration and climate monitoring, represents a prime factor driving the market growth. In line with this, significant improvements in the military and defense sector and the recent development of UAV drones for asset management and performing dangerous battlefield surveillance operations are acting as another growth-inducing factor. This is further supported by the favorable investments being made by the governments of different nations to enhance their military capabilities. Additionally, the extensive usage of solar-powered UAVs in the agricultural sector over traditional surveying methodologies to analyze crop growth, climatic conditions, spray fertilizers, and track soil conditions is favoring the market growth. Solar-powered UAVs are further employed to assess the ecological damage and active risks, perform weather forecasting, and minimize the adverse effects of potential danger in the mining industry to improve workers safety, which is supporting the market growth. Moreover, the escalating usage of photovoltaic (PV) cells and hybrid-electric propulsion engines to improve the vessel performance at lower maintenance costs is propelling the market growth. Apart from this, significant technological advancements, such as the integration of image-transmitting systems and strategic collaborations amongst key players, are positively impacting the market growth.

Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the global solar-powered UAV market, along with forecasts at the global, regional, and country levels from 2024-2032. Our report has categorized the market based on type, range, component, mode of operation and application.

Type Insights:

Fixed Wing Drones

Multicopter Drones

Quadcopter Drones

The report has also provided a detailed breakup and analysis of the solar-powered UAV

market based on the type. This includes fixed wing, multirotor, and quadcopter drones. According to the report, fixed wing drones represented the largest segment.

Range Insights:

Less Than 300 KM

More Than 300 KM

A detailed breakup and analysis of the solar-powered UAV market based on the range has also been provided in the report. This includes less than 300 KM and more than 300 KM. According to the report, more than 300 KM accounted for the largest market share.

Component Insights:

Propulsion System

Airframe

Guidance Navigation

Control System

Payload

The report has also provided a detailed breakup and analysis of the solar-powered UAV market based on the component. This includes propulsion system, airframe, guidance navigation, control system and payload.

Mode of Operation Insights:

Semi-Autonomous

Autonomous

A detailed breakup and analysis of the solar-powered UAV market based on the mode of operation has also been provided in the report. This includes semi-autonomous and autonomous. According to the report, semi-autonomous accounted for the largest market share.

Application Insights:

Defense

Commercial

The report has also provided a detailed breakup and analysis of the solar-powered UAV market based on the application. This includes defense and commercial. According to the report, defense represented the largest segment.

Regional Insights:

North America

United States

Canada

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Others

Europe

Germany

France

United Kingdom

Italy

Spain

Russia

Others

Latin America

Brazil

Mexico

Others

Middle East and Africa

The report has also provided a comprehensive analysis of all the major regional markets that include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, North America was the largest market for solar-powered UAVs. Some of the factors driving the North America solar-powered UAV market included the widespread product

application in the defense and military sectors, extensive research and development (R&D) activities, and the rising utilization in the agricultural industry.

Competitive Landscape:

The report has also provided a comprehensive analysis of the competitive landscape in the global solar-powered UAV market. Detailed profiles of all major companies have also been provided. Some of the companies covered include BAE Systems Plc, Barnard Microsystems Ltd, Eos Technologie, Sunlight Aerospace, UAV Instruments S.L, Xsun, etc.

Key Questions Answered in This Report

1. How big is the global solar-powered UAV market?
2. What is the expected growth rate of the global solar-powered UAV market during 2024-2032?
3. What are the key factors driving the global solar-powered UAV market?
4. What has been the impact of COVID-19 on the global solar-powered UAV market?
5. What is the breakup of the global solar-powered UAV market based on the type?
6. What is the breakup of the global solar-powered UAV market based on the range?
7. What is the breakup of the global solar-powered UAV market based on the mode of operation?
8. What is the breakup of the global solar-powered UAV market based on the application?
9. What are the key regions in the global solar-powered UAV market?
10. Who are the key players/companies in the global solar-powered UAV market?

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