

# **Organic Photovoltaics (OPV) Market Forecasts to 2034 – Global Analysis By Material Type (Small Molecule OPVs, Polymer OPVs and Hybrid OPVs), Device Structure, Application, End User and By Geography**

<https://marketpublishers.com/r/O28F8E20F42AEN.html>

Date: June 2026

Pages: 200

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

ID: O28F8E20F42AEN

## **Abstracts**

According to Statistics MRC, the Global Organic Photovoltaics (OPV) Market is accounted for \$0.6 billion in 2026 and is expected to reach \$7.2 billion by 2034 growing at a CAGR of 37.8% during the forecast period. Organic Photovoltaics (OPV) refer to solar cells built from organic, carbon-rich materials that harvest light and produce electrical power. In contrast to rigid silicon modules, OPV layers are thin, bendable, and compatible with roll-to-roll fabrication techniques like printing, enabling lower energy inputs and potentially lower costs. Their form factor supports integration into facades, windows, vehicles, textiles, and portable devices. While efficiency and durability have historically been limitations, ongoing improvements in active materials, interfaces, and protective barriers are boosting performance and lifespan, positioning OPV as a flexible, lightweight solution for distributed, design-friendly renewable energy applications worldwide across varied climates and markets.

According to the International Renewable Energy Agency, global solar photovoltaic capacity is projected to increase from about 480 GW in 2018 to 2,840 GW by 2030 and 8,519 GW by 2050, highlighting the massive expansion of the parent solar PV market that supports emerging technologies like OPV.

### **Market Dynamics:**

Driver:

Rising demand for lightweight and flexible solar solutions

Increasing preference for flexible and lightweight solar technologies is significantly boosting the OPV market. OPV panels differ from traditional rigid silicon systems by offering bendable and ultra-thin designs that can be applied to uneven or curved surfaces. This enables innovative uses in wearable devices, portable gadgets, vehicles, and integrated building materials like glass and walls. As modern industries emphasize mobility and aesthetic integration, OPV provides an attractive solution. Additionally, its reduced weight lowers logistics and installation expenses. These advantages are encouraging wider adoption of OPV systems across multiple industries that require adaptable and efficient energy solutions.

#### Restraint:

##### Lower efficiency compared to conventional solar technologies

One of the key challenges for the OPV market is its comparatively lower energy conversion efficiency than traditional silicon solar systems. OPV modules generally produce less electricity from the same amount of sunlight, which reduces their appeal for high-output energy applications. This limitation makes them less suitable for utility-scale installations where efficiency is a priority. Despite ongoing innovations aimed at improving performance, OPV technology still trails behind conventional photovoltaics. Consequently, many industries continue to favor established high-efficiency solutions, which restrict the broader acceptance and growth potential of OPV in competitive energy markets.

#### Opportunity:

##### Expansion in wearable and portable electronics

The increasing adoption of wearable technology and portable gadgets creates a significant opportunity for OPV growth. With their flexible and ultra-light design, OPV cells can be incorporated into devices like smart bands, clothing, and portable equipment. This allows devices to generate power from surrounding light, minimizing the need for regular charging. As consumers seek more convenient and energy-efficient solutions, OPV becomes an attractive option. Its ability to conform to various shapes improves design possibilities. This trend supports the development of innovative, self-sustaining electronics, positioning OPV as a key technology in the evolving portable device market.

### Threat:

#### Rapid advancements in competing solar technologies

Continuous improvements in alternative solar technologies represent a major risk for the OPV market. Competing systems like silicon and emerging perovskite cells are rapidly enhancing efficiency, longevity, and cost-effectiveness. This makes them more appealing for widespread energy generation projects. As these technologies evolve, OPV faces challenges in competing on performance and reliability. The fast pace of innovation among rivals forces OPV developers to invest heavily in research to remain competitive. This ongoing pressure may slow market expansion and limit OPV adoption, particularly in sectors where efficiency and durability are critical decision factors.

### Covid-19 Impact:

The outbreak of COVID-19 influenced the OPV market in both negative and positive ways. In the early stages, global disruptions affected supply chains, halted manufacturing processes, and slowed research and development activities. Restrictions on movement limited material availability and delayed project timelines, while financial uncertainties reduced investments in new technologies. Despite these challenges, the pandemic increased awareness of clean and localized energy solutions. Governments and industries began prioritizing sustainable recovery plans, which supported renewable energy adoption. As a result, although the OPV market faced temporary setbacks, its future outlook strengthened with growing emphasis on green and resilient energy infrastructure.

The polymer OPVs segment is expected to be the largest during the forecast period

The polymer OPVs segment is expected to account for the largest market share during the forecast period because of their adaptability and ease of large-scale fabrication. These materials support cost-effective production methods like printing and continuous coating, enabling efficient manufacturing over wide surfaces. They also provide enhanced flexibility and strong light-harvesting capabilities, making them suitable for diverse applications. Additionally, their properties can be adjusted through chemical design, allowing ongoing improvements in device performance. Due to these advantages, polymer OPVs are commonly used in sectors such as integrated building solutions and portable devices, reinforcing their leading role in the overall OPV industry.

The commercial segment is expected to have the highest CAGR during the forecast

period

Over the forecast period, the commercial segment is predicted to witness the highest growth rate, driven by rising demand for energy-efficient solutions in business environments such as offices and retail centers. OPV technology is well-suited for these settings due to its flexible, lightweight, and partially transparent design, allowing seamless integration into building structures. Companies are increasingly prioritizing sustainability and energy savings, boosting the adoption of renewable technologies. Supportive regulations and increasing electricity costs further motivate investments in OPV systems. These factors collectively contribute to the rapid expansion of OPV applications within commercial infrastructure developments.

### **Region with largest share:**

During the forecast period, the Asia-Pacific region is expected to hold the largest market share due to its robust industrial base, increasing focus on renewable energy, and fast-paced urban development. Governments in this region are encouraging sustainable energy solutions to meet growing power needs and reduce environmental impact. The availability of advanced manufacturing infrastructure and key industry players enables efficient production and technological progress in OPV systems. Rising adoption in applications such as integrated building materials and portable devices further boosts demand. Supportive regulations, funding initiatives, and ongoing research efforts continue to reinforce Asia-Pacific's leading position in the global OPV market.

### **Region with highest CAGR:**

Over the forecast period, the Europe region is anticipated to exhibit the highest CAGR due to its strong commitment to clean energy and strict environmental policies. Governments across the region are actively promoting advanced solar technologies to achieve sustainability goals and reduce carbon emissions. Significant funding for innovation and research is helping improve OPV performance and commercialization. The increasing use of solar-integrated building materials and energy-efficient designs is further driving demand. With supportive regulations and rising awareness of green energy solutions, Europe is emerging as a key high-growth region for the expansion of OPV technology.

### **Key players in the market**

Some of the key players in Organic Photovoltaics (OPV) Market include Armor Group,

AGC, Heliatek, Mitsubishi Chemical, Sumitomo Chemical, BASF, Toshiba, Henkel, Heraeus, Merck, Sunew, Epishine, Dracula Technologies, Next Energy Technologies, ChasingLight, NanoFlex Power Corporation, Raynergy Tek and InfinityPV.

### **Key Developments:**

In November 2025, Sumitomo Chemical is all set to expand its global footprint in the booming semiconductor market. The company has announced a definitive agreement to acquire 100% of Taiwan-based semiconductor process chemicals company Asia Union Electronic Chemical Corporation (AUECC). The deal, subject to standard regulatory approvals, will mark Sumitomo's first manufacturing base in Taiwan and its second in the United States, alongside its Texas facility.

In July 2025, BASF and Equinor have signed a long-term strategic agreement for the annual delivery of up to 23 terawatt hours of natural gas over a ten-year period. The contract secures a substantial share of BASF's natural gas needs in Europe. This agreement further strengthens our partnership with BASF. Natural gas not only provides energy security to Europe but also critical feedstock to European industries.

In November 2023, Heliatek is proudly announcing their exclusive partnership to offer a full system solution for the most sustainable and efficient roof renovation. Combining Heliatek's HeliaSol® solar films and Triflex liquid applied waterproofing, customers will benefit from a jointly tested solution to securely seal the roof extending its lifetime while simultaneously producing clean solar power.

### **Material Types Covered:**

Small Molecule OPVs

Polymer OPVs

Hybrid OPVs

### **Device Structures Covered:**

Single-Layer OPVs

Multi-Layer OPVs

## Tandem OPVs

### Applications Covered:

Consumer Electronics

Building-Integrated Photovoltaics (BIPV)

Automotive

Large-Scale Power Projects

### End Users Covered:

Residential

Commercial

Industrial

Utility

### 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**

Benchmarking of key players based on product portfolio, geographical

presence, and strategic alliances

## Contents

### **1 EXECUTIVE SUMMARY**

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

### **2 RESEARCH FRAMEWORK**

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
  - 2.4.1 Data Collection (Primary and Secondary)
  - 2.4.2 Data Modeling and Estimation Techniques
  - 2.4.3 Data Validation and Triangulation
  - 2.4.4 Analytical and Forecasting Approach

### **3 MARKET DYNAMICS AND TREND ANALYSIS**

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

### **4 COMPETITIVE AND STRATEGIC ASSESSMENT**

- 4.1 Porter's Five Forces Analysis
  - 4.1.1 Supplier Bargaining Power
  - 4.1.2 Buyer Bargaining Power
  - 4.1.3 Threat of Substitutes
  - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

## **5 GLOBAL ORGANIC PHOTOVOLTAICS (OPV) MARKET, BY MATERIAL TYPE**

- 5.1 Small Molecule OPVs
- 5.2 Polymer OPVs
- 5.3 Hybrid OPVs

## **6 GLOBAL ORGANIC PHOTOVOLTAICS (OPV) MARKET, BY DEVICE STRUCTURE**

- 6.1 Single-Layer OPVs
- 6.2 Multi-Layer OPVs
- 6.3 Tandem OPVs

## **7 GLOBAL ORGANIC PHOTOVOLTAICS (OPV) MARKET, BY APPLICATION**

- 7.1 Consumer Electronics
- 7.2 Building-Integrated Photovoltaics (BIPV)
- 7.3 Automotive
- 7.4 Large-Scale Power Projects

## **8 GLOBAL ORGANIC PHOTOVOLTAICS (OPV) MARKET, BY END USER**

- 8.1 Residential
- 8.2 Commercial
- 8.3 Industrial
- 8.4 Utility

## **9 GLOBAL ORGANIC PHOTOVOLTAICS (OPV) MARKET, BY GEOGRAPHY**

- 9.1 North America
  - 9.1.1 United States
  - 9.1.2 Canada
  - 9.1.3 Mexico
- 9.2 Europe
  - 9.2.1 United Kingdom
  - 9.2.2 Germany

- 9.2.3 France
- 9.2.4 Italy
- 9.2.5 Spain
- 9.2.6 Netherlands
- 9.2.7 Belgium
- 9.2.8 Sweden
- 9.2.9 Switzerland
- 9.2.10 Poland
- 9.2.11 Rest of Europe
- 9.3 Asia Pacific
  - 9.3.1 China
  - 9.3.2 Japan
  - 9.3.3 India
  - 9.3.4 South Korea
  - 9.3.5 Australia
  - 9.3.6 Indonesia
  - 9.3.7 Thailand
  - 9.3.8 Malaysia
  - 9.3.9 Singapore
  - 9.3.10 Vietnam
  - 9.3.11 Rest of Asia Pacific
- 9.4 South America
  - 9.4.1 Brazil
  - 9.4.2 Argentina
  - 9.4.3 Colombia
  - 9.4.4 Chile
  - 9.4.5 Peru
  - 9.4.6 Rest of South America
- 9.5 Rest of the World (RoW)
  - 9.5.1 Middle East
    - 9.5.1.1 Saudi Arabia
    - 9.5.1.2 United Arab Emirates
    - 9.5.1.3 Qatar
    - 9.5.1.4 Israel
    - 9.5.1.5 Rest of Middle East
  - 9.5.2 Africa
    - 9.5.2.1 South Africa
    - 9.5.2.2 Egypt
    - 9.5.2.3 Morocco

#### 9.5.2.4 Rest of Africa

## **10 STRATEGIC MARKET INTELLIGENCE**

10.1 Industry Value Network and Supply Chain Assessment

10.2 White-Space and Opportunity Mapping

10.3 Product Evolution and Market Life Cycle Analysis

10.4 Channel, Distributor, and Go-to-Market Assessment

## **11 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES**

11.1 Mergers and Acquisitions

11.2 Partnerships, Alliances, and Joint Ventures

11.3 New Product Launches and Certifications

11.4 Capacity Expansion and Investments

11.5 Other Strategic Initiatives

## **12 COMPANY PROFILES**

12.1 Armor Group

12.2 AGC

12.3 Heliatek

12.4 Mitsubishi Chemical

12.5 Sumitomo Chemical

12.6 BASF

12.7 Toshiba

12.8 Henkel

12.9 Heraeus

12.10 Merck

12.11 Sunew

12.12 Epishine

12.13 Dracula Technologies

12.14 Next Energy Technologies

12.15 ChasingLight

12.16 NanoFlex Power Corporation

12.17 Raynergy Tek

12.18 InfinityPV

## List Of Tables

### LIST OF TABLES

Table 1 Global Organic Photovoltaics (OPV) Market Outlook, By Region (2023-2034) (\$MN)

Table 2 Global Organic Photovoltaics (OPV) Market Outlook, By Material Type (2023-2034) (\$MN)

Table 3 Global Organic Photovoltaics (OPV) Market Outlook, By Small Molecule OPVs (2023-2034) (\$MN)

Table 4 Global Organic Photovoltaics (OPV) Market Outlook, By Polymer OPVs (2023-2034) (\$MN)

Table 5 Global Organic Photovoltaics (OPV) Market Outlook, By Hybrid OPVs (2023-2034) (\$MN)

Table 6 Global Organic Photovoltaics (OPV) Market Outlook, By Device Structure (2023-2034) (\$MN)

Table 7 Global Organic Photovoltaics (OPV) Market Outlook, By Single-Layer OPVs (2023-2034) (\$MN)

Table 8 Global Organic Photovoltaics (OPV) Market Outlook, By Multi-Layer OPVs (2023-2034) (\$MN)

Table 9 Global Organic Photovoltaics (OPV) Market Outlook, By Tandem OPVs (2023-2034) (\$MN)

Table 10 Global Organic Photovoltaics (OPV) Market Outlook, By Application (2023-2034) (\$MN)

Table 11 Global Organic Photovoltaics (OPV) Market Outlook, By Consumer Electronics (2023-2034) (\$MN)

Table 12 Global Organic Photovoltaics (OPV) Market Outlook, By Building-Integrated Photovoltaics (BIPV) (2023-2034) (\$MN)

Table 13 Global Organic Photovoltaics (OPV) Market Outlook, By Automotive (2023-2034) (\$MN)

Table 14 Global Organic Photovoltaics (OPV) Market Outlook, By Large-Scale Power Projects (2023-2034) (\$MN)

Table 15 Global Organic Photovoltaics (OPV) Market Outlook, By End User (2023-2034) (\$MN)

Table 16 Global Organic Photovoltaics (OPV) Market Outlook, By Residential (2023-2034) (\$MN)

Table 17 Global Organic Photovoltaics (OPV) Market Outlook, By Commercial (2023-2034) (\$MN)

Table 18 Global Organic Photovoltaics (OPV) Market Outlook, By Industrial (2023-2034)

(\$MN)

Table 19 Global Organic Photovoltaics (OPV) Market Outlook, By Utility (2023-2034)

(\$MN)

Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) Regions are also represented in the same manner as above.

## I would like to order

Product name: Organic Photovoltaics (OPV) Market Forecasts to 2034 – Global Analysis By Material Type (Small Molecule OPVs, Polymer OPVs and Hybrid OPVs), Device Structure, Application, End User and By Geography

Product link: <https://marketpublishers.com/r/O28F8E20F42AEN.html>

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

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

[info@marketpublishers.com](mailto:info@marketpublishers.com)

## Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/O28F8E20F42AEN.html>