Europe Solar PV Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025-2034

Market Report | 2025-02-18 | 90 pages | Global Market Insights

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Report description:

Europe Solar PV Market was valued at USD 63.1 billion in 2024 and is expected to grow at a CAGR of 7.1% from 2025 to 2034. Many European countries support residential and commercial solar installations through rebates, grants, and tax credits, fostering rapid market expansion. Large-scale investments in solar infrastructure across major economies such as Germany, the UK, and France are transforming the energy sector. The declining cost of solar PV modules, coupled with financial backing from state and local government banks, has positioned solar as a leading energy source. According to IRENA, module prices have dropped by nearly 90% over the past decade, making solar power one of the most cost-effective energy options in the region.

Grid-connected solar PV systems dominate the industry, expected to exceed USD 123.3 billion by 2034. Advanced monitoring, remote-control features, and grid-balancing capabilities are driving adoption. Ongoing research is improving the efficiency and durability of solar materials, with emerging technologies such as perovskite solar cells and flexible panels further supporting growth. Expanding corporate and local government support for project development is fueling connectivity solutions, strengthening the market's outlook.

Off-grid solar PV systems, valued at USD 1.4 billion in 2024, are projected to grow at a CAGR of approximately 9.7% through 2034. Remote locations, particularly in Scandinavian nations, the Alps, and Eastern Europe, rely on off-grid solutions due to unreliable grid connectivity. The European Union's focus on rural electrification has accelerated the adoption of these systems, offering cost-effective and environmentally sustainable energy alternatives. Off-grid technology also provides reliable backup power during grid failures and natural disasters, ensuring uninterrupted energy supply for critical operations.

Based on mounting structure, the industry is categorized into ground-mounted and rooftop systems. The ground-mounted segment is anticipated to grow at over 7% CAGR through 2034, driven by technological advancements that enhance efficiency and economic viability. Strategic collaborations between industry players are promoting large-scale solar adoption and improving energy optimization. Ground-mounted systems maximize sun exposure, unlike rooftop setups that are constrained by roof orientation and shading. Enhanced tracking mechanisms further optimize energy output, reinforcing the segment's growth.

Rooftop solar PV accounted for 54.8% of total market revenue in 2024. Volatility in energy prices, influenced by geopolitical factors and supply chain disruptions, has pushed homeowners and businesses toward energy independence. This transition

reduces dependence on grid electricity and supports clean energy adoption. Regulatory frameworks continue to favor rooftop solar expansion, with new building mandates and financial incentives promoting installations. Standardization efforts at the European level are expected to drive additional capacity deployment across the continent, reinforcing the market's expansion. Germany remains a critical player in the Europe solar PV market, with its valuation growing from USD 8 billion in 2022 to USD 18.4 billion in 2024. Government regulations, infrastructure investments, and strong public-private partnerships are enhancing market potential. Solar mandates for new buildings have significantly increased adoption, while businesses are investing in solar technology to expand their renewable energy footprint. Rising consumer awareness and policy support are shaping a dynamic and competitive landscape for solar PV in Europe.

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