

# Saudi Arabia Bifacial Solar Market Assessment, By Product Type [Glass-Glass, Glass-Back Sheets, Others], By Frame Type [Framed, Frameless], By Module Type [Passivated Emitter Rear Cell, Heterojunction, Others] By Installation Type [Ground-Mounted, Rooftop, Floating], By Application [Residential, Commercial, Industrial, Utility], By Region, Opportunities and Forecast, 2018-2032F

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#### **Report description:**

Saudi Arabia bifacial solar market is projected to witness a CAGR of 16.29% during the forecast period 2025-2032, growing from USD 190.70 million in 2024 to USD 637.59 million in 2032. Bifacial panels are designed with a transparent back sheet or a dual-glass design which allows sunlight to reach the photovoltaic cells on both sides.

Several interrelated factors, including renewable energy goals and environmental conditions, are driving the demand for bifacial solar panels in Saudi Arabia. The country's favorable environmental conditions, governmental support for renewable initiatives, and cost competitiveness are key factors boosting the utility sector's demand for bifacial solar panels. Furthermore, to achieve Saudi Arabia ambitious 2030 targets and its renewable energy objective of sourcing 50% of its electricity capacity from renewable sources by 2030, Saudi Arabia is investing in its solar infrastructure. Bifacial technology is expected to play a pivotal role in meeting these goals, further driving its demand in the market.

Bifacial solar technology performs well under varying conditions, including partial shading, harsh weather, and diverse weather scenarios. Its ability to harness diffuse sunlight further enhances efficiency in less-than-ideal conditions. Moreover, technology continues to evolve and innovate, which will likely lead to cost reductions in the near future. Bifacial technology offers several advantages, such as high energy yield, longevity, durability, and optimized performance in diverse conditions. Consequently, its utilization is increasing in several upcoming projects in Saudi Arabia. Bifacial panels are therefore likely to play a significant role in the future of solar energy deployment in Saudi Arabia.

For instance, in September 2024, Saudi Arabia will start process on developing 4,500 MW-renewable energy projects. The Saudi

Power Procurement Co. outlined the key projects, including the 1,500-MW Dawadmi wind project in the Riyadh region. The 1,400-MW Najran solar project and two solar initiatives in Jazan Samtah and Al-Darb, each boasting a capacity of 600 MW. Further, the Sufun solar project in Hail will add 400 MW of power to the grid. This development will help to increase the demand for bifacial solar in the market.

Rise in the Adoption of Energy Efficient Technologies in the Utility Sector

The utility sector is evolving towards cleaner and more efficient operations. Across the country, the sector is increasingly adopting innovative, energy-efficient technologies to increase power production and achieve economies of scale. This push to integrate renewable energy sources into the grid is driving demand for technologies such as bifacial solar panels. The increased adoption of energy-efficient technologies within the utility sector creates a favorable environment for the wider use of bifacial solar panels. Bifacial solar technology integrates seamlessly into modern grid systems, and its alignment with sustainability goals makes it an essential component of future energy strategies. This technology plays a pivotal role in shaping the landscape of renewable energy generation. In addition, bifacial solar panels are well-suited for diverse applications due to their compact size and high output, making them ideal for rooftop installations or small-scale solar farms. Utilities are incentivized to invest in bifacial technology because it aligns with the goals of reducing operational costs and enhancing energy production.

Furthermore, increasing pressure from regulators to meet emissions and sustainability standards is driving demand in the bifacial solar market. Bifacial solar panels help the utility sector achieve its goals, such as utilizing cleaner energy sources and lowering carbon footprints by installing bifacial solar panels in solar projects. The efficient power generation offered by bifacial solar technology makes it an increasingly prevalent choice for utilities as part of their compliance strategies.

In December 2024, Saudi Arabia companies have launched seven new solar power projects to diversify the economy and reduce reliance on fossil fuels. These projects include the Ar Rass II Solar Power Plant, Al Sadawai IPP Solar Power Plant, Amaala Solar Power Plant, Al Masa'a IPP Solar Power Plant and many others. Saudi Arabia leads the GCC (Gulf Cooperation Council) region with 2.1 GW of operational PV (Photovoltaics) capacity and an additional 5.3 GW under construction, expected to be commissioned by 2025. The Al Masa'a IPP Solar Power Plant, a 1000 MW solar PV system developed by the Saudi Power Procurement Company (SPPC) in the Hail province, utilizes bifacial solar panel technology to maximize energy capture, aligning with Saudi Arabia's Vision 2030. This project is currently in pre-development, with the Saudi Power Procurement Company (SPPC) having finalized the tendering process.

Enhancement Reliability and Durability of Panels Augmenting the Market Growth

Saudi Arabia is shifting towards sustainable energy sources, which require reliable technology for the transition. Industrial and utility sectors are willing to invest in technology that is durable and yields high power generation. The bifacial solar panels are typically manufactured with dual-glass designs, which provide protection against environmental factors such as hail, high winds, and extreme temperatures. The high-quality material is used during the construction process, which enhances the resistance to any physical damage compared to traditional monofacial panels. The durability of bifacial panels translates into a longer lifespan, often accompanied by warranties extending up to 30 years. The high durability features of bifacial technology make the product a compelling choice for both utility-scale projects and commercial installations.

Bifacial solar panels also require minimal maintenance due to their durable design and the materials used in their production. Regular cleaning of the panels is often sufficient to maintain optimal performance, which reduces operational upkeep costs. As the country increasingly focuses on integrating solar power with energy storage systems, grid stability and reliability are enhanced. Furthermore, bifacial solar panels are highly efficient because they capture sunlight from both sides, enabling increased energy production up to 30% more than monofacial panels under the same conditions. This enhanced energy yield directly impacts the profitability of solar farms, driving demand in the market.

For instance, in July 2024, JinkoSolar decided to open a new production plant in Saudi Arabia to produce high-quality solar cells. The production plant will be one of the largest plant for solar cell with an investment of around USD 1 billion, the plant will have an annual capacity of 10GW and is expected to be commissioned by the early 2026. This development will boost the production of solar cell in the country and will help the country in achieving its renewable energy target.

Government Initiatives Creating Market Opportunities

The Saudi Arabian government is creating significant opportunities for solar farm development in the country, aligning with its broader goals of diversifying energy sources and enhancing renewable energy capacity. This initiative supports the government's

aim to generate 50% of its electricity from renewable sources by 2030. These ambitious targets are creating substantial demand for advanced solar technologies, such as bifacial panels. To encourage adoption, the government provides subsidies, tax advantages, and exemptions for large-scale solar projects utilizing bifacial solar panels.

Furthermore, the government is providing financial support to renewable energy projects to stimulate investment in clean technologies. These financial incentives make the adoption of bifacial solar installations more economically viable for developers. The Saudi Arabian government is promoting local manufacturing of solar components through various incentives, including local content requirements that mandate a certain percentage of solar project components be sourced domestically. This local manufacturing initiative encourages investments in the production of bifacial panels and related technologies within the country. The establishment of supportive regulatory frameworks further encourages the development of renewable energy projects. Clear regulations and guidelines facilitate the deployment of bifacial technology, as utilities and developers seek to comply with sustainability goals while maximizing energy output.

For instance, Government of Saudi Arabia has announced the approval of plans to build two solar photovoltaic (PV) facilities in the country. The government will invest around USD 2.37 billion with an annual capacity of 2.6 GW. The plants named Al Shuaibah PV 1 and Al Shuaibah PV 2 will be in the province of Mecca and will have a generating capacity of 600 megawatts and 2,031 megawatts which will power over 45,000 Saudi households. Developed by ACWA Power, Badeel (owned by the Saudi Public Investment Fund), and Saudi Aramco Power Company, with ownership split 35.01%, 34.99%, and 30% respectively, these facilities are expected to be operational by the end of 2025. This initiative aligns with Saudi Arabia's National Renewable Energy Programme, targeting 50% electricity generation from renewables by 2030 and carbon neutrality by 2060. Glass-Back Sheets to Dominate the Saudi Arabia Market

Glass backsheets bifacial solar panels are experiencing a high adoption rate, which is expected to drive the segment's dominance in the Saudi Arabian market. With a growing emphasis on sustainability and reducing carbon footprints, the country increasingly prefers renewable energy solutions manufactured from efficient materials. Glass backsheets contribute to the overall efficiency of solar panels, aligning with environmental goals and consumer preferences for greener technologies. The high demand for glass backsheet bifacial solar panels in Saudi Arabia is driven by their durability and higher energy yield in diverse environmental conditions. These panels can generate more power, making them suitable for various regions within Saudi Arabia. Moreover, the flexibility and durability of glass-backsheet bifacial panels drive their adoption in large solar power plants. In

addition, bifacial solar panels with glass backsheets are well-suited for upcoming projects in the country, further driving demand for this segment in the market.

Riyadh Region Dominates the Saudi Arabia Bifacial Solar Market

The Riyadh region of Saudi Arabia has dominated the bifacial solar market and is expected to continue to do so during the forecast period. The region benefits from high solar irradiance levels throughout the year, making the location ideal for new solar projects. Expansion of solar plants in Riyadh is facilitated by abundant sunlight, which generates significant amounts of renewable energy. The region includes several industrial and residential areas, which could create a large customer base for bifacial solar panels in the coming years.

Furthermore, the development of new renewable energy projects drives the demand for bifacial solar panels in the market. Government subsidies for the adoption of clean energy solutions will further drive the demand for bifacial solar in large-scale power generation plants. This aligns with Saudi Arabia's national strategies, such as the National Renewable Energy Program (NREP) and Saudi Vision 2030, which aim to increase the country's reliance on renewable energy and reduce its carbon footprint. Future Market Scenario (2025 [] 2032F)

Advanced bifacial solar will be required for industrial applications, helping to shape the future of Saudi Arabia bifacial solar market.

The Saudi Arabian government is promoting the adoption of sustainable and energy-efficient technological solutions, which are expected to significantly boost the bifacial solar market in the region.

The demand for hybrid systems is on rise due to which bifacial solar is becoming more popular in residential applications. As industries and homeowners continue to seek for cleaner, efficient, and more reliable power solutions the demand for bifacial solar will continue to grow in forecast period.

Key Players Landscape and Outlook

Continuous innovation characterizes the landscape of bifacial solar globally, as the companies compete in terms of energy efficiency, product life, and unique features. The market outlook remains positive, owing to increased demand for renewable energy. Product launches, project agreements, business expansion, collaborations, and developing technologies are projected to increase competition in the fast-paced market.

For instance, LONGi Green Energy Technology Co., Ltd. delivered the Hi-MO 5 bifacial modules of capacity 406MW for Saudi Arabia's Red Sea project in the country. This development helped the company to increase its product portfolio and presence in Saudi Arabia market.

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