South Africa Solar Energy Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 127 pages | Mordor Intelligence

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Report description:

The South African solar energy market is expected to witness a CAGR of 10.56% during the forecast period, 2022-2027. The COVID-19 pandemic led to a slight delay in utility project execution. Demand from the residential PV segment was severely affected due to financial uncertainty faced by the customers, whereas commercial and industrial installations faced a negative impact as optional spending was delayed. The solar energy market in South Africa is likely to be driven by the presence of abundant natural resources since most areas in South Africa receive more than 2,500 hours of sunshine per year. However, increasing adoption of alternate renewable energy sources such as wind and hydropower is expected to hinder the growth of the market.

Key Highlights
The solar PV segment is expected to dominate the market during the forecast period, owing to simplified technology along with lower cost as compared to its counterpart concentrated solar power technology.
Due to increasing power outages in the country leading to the electricity crisis and increasing demand for continuous power, several opportunities are expected for the market players in South Africa to full-in the supply and demand gap.
Efforts to reduce over reliance on coal-based power plants are likely to drive the market during the forecast period.

South Africa Solar Energy Market Trends

Solar PV segment to Dominate the Market

South Africa receives sunshine for more than 2,500 hours per year. Furthermore, the country has an annual solar radiation average of around 220 W/m2; due to this ideal condition, South Africa is one of the major hotspots for the development of the solar energy market in the Middle Eastn Region.
According to the Climate Commission of South Africa, the transitioning of South Africa from fossil fuel to renewable power system will require the deployment of roughly 150 GW of wind and solar capacity by 2050, a rate of 4 GW each year to net-zero. Furthermore, according to the Blended Finance Taskforce and Stellenbosch University's Centre for Sustainability Transitions report, South Africa will need USD 250 billion over the next three decades to transform its renewable energy system, which is around 3% of South Africa's GDP annually.
To facilitate these needs, the South African government introduced Renewable Energy Independent Power Producer Procurement Programme. From the inception of this program, over 6,000 MW of renewable energy projects were allocated to bidders, principally in wind and solar. Furthermore, to achieve this ambitious target, the government is strategically investing in renewable energy projects, particularly solar and wind. As of May 2022, the total installed capacity of utility-scale photovoltaic power generation was around 2,371 MW.
In November 2021, the governments of South Africa, the United Kingdom, the United States, and the European Union announced a new ambitious, long-term Just Energy Transition Partnership to support South Africa's decarbonization efforts to achieve the net-zero emission by 2050. Under this partnership program, the initial commitment of USD 8.5 billion was mobilized for the first financing phase. The funding would be in various mechanisms, including grants, concessional loans, and investments and risk-sharing instruments.
On February 22, 2022, South Africa launched a 300 MW renewable energy program. Under this program, the government launched the tender process to procure up to 300 MW of renewable energy capacity. The first round involves the procurement of independent power producer projects with capacities ranging from 5 MW to 20 MW; the power generation would be from solar photovoltaic (PV) technology. The second phase of the program involves the tender of projects of more than 20 MW.
Therefore, owing to the above points, the solar PV segment is expected to dominate the solar energy market in South Africa during the forecast period.

Efforts To Reduce Over Reliance On Coal-based Power Plants are Expected to Drive the Market

South Africa is the seventh-largest coal producer in the world, and the country is heavily dependent on coal-based thermal power plants. As of 2021, coal-based thermal power plants account for nearly 82% of the total installed capacity and 76% of the entire electricity generation in 2021. As of 2021, the country had 15 operational power plants with a net installed capacity of nearly 39.3 GW, making South Africa the most significant greenhouse gas emitter and the 11th largest in the world.
However, despite sizeable domestic coal reserves, South Africa faces a significant electricity shortage. According to the Council for Scientific and Industrial Research (CSIR), in 2021, load shedding occurred for 1,169 hours (~13% of the time), with an upper limit of 2,521 GWh relative to the actual energy shed of 1,775 GWh.
The energy crisis has been primarily caused by overreliance on older coal-based thermal power plants owned and operated by the national power utility ESKOM. In 2021, the average Equivalent Availability Factor (EAF) for ESKOM's power plant fleet stood at 61.8%, down from 65% in 2020.
Additionally, for ESKOM's coal-fired fleet, the Planned Capability Loss Factor (PCLF) for planned maintenance stood at 10.4%, and the Unplanned Capability Loss Factor (UCLF) due to unplanned outages stood at 24.6%. Other Capability Loss Factor (OCLF) stood at 2.9%.
Such significant plant loss factor coefficients are primarily due to ESKOM's coal-fired fleet age. Excluding the newly built Medupi and Kusile facilities, the average age of ESKOM's coal-powered fleet is 41 years, which is significantly higher.
Due to their advanced age, these power plants are inefficient by current standards, highly vulnerable to outages, and require frequent maintenance, driving up operational costs. Additionally, electricity production is more polluting and generates a much higher amount of greenhouse gases. According to ESKOM, it will cost the utility approximately ZAR 300 billion to make its aging

coal-fired fleet compliant with minimum emissions standards.
Therefore, owing to the above points, efforts to reduce over reliance on coal-based power plants is expected to drive the country's solar energy market during the forecast period.

South Africa Solar Energy Market Competitor Analysis

The South African solar energy market is moderately consolidated. Some of the major players in the market include Canadian Solar Inc., ARTsolar (Pty) Ltd, Energy Partners Holdings (Pty) Ltd, IBC Solar AG, and Segen Solar (Pty) Ltd.

Additional Benefits:

The market estimate (ME) sheet in Excel format
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