

The Solar PV Market in India: Bridging the Gaps

By Bidisha Banerjee and Upasna Ranjan.

India's solar photovoltaics (PV) market is rapidly growing. However, to reach the ambitious goal of 500 GW of renewable energy by 2030, there is a pressing need to increase installed capacity and generation targets. With only around 62 GW of installed solar capacity achieved by the end of 2022, India fell short of its 100 GW target for the year. Favourable policies, financial support, technological advancements, and a competitive market are essential for further advancing the growth of India's solar PV sector. In the first article of the series, we assess the gaps in key areas of the sector.

Policy and Regulatory Framework

India has made significant progress in establishing a policy and regulatory framework to support the solar market. The government has put in place the National Solar Mission (NSM) to create the necessary policy conditions for the distribution of solar energy across the country. In addition to this, the Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan (PM KUSUM) has been created to de-dieselise the farm sector, provide water and energy security to farmers, deploy solar pumps, and curb environmental pollution. To address long-standing problems, additional improvements are needed. Streamlining administrative procedures, providing clarity on tariffs and incentives, and lowering administrative barriers will improve the ease of doing business in the industry and increase investor confidence, drawing more players to the market.

Financing and Cost-Competitiveness

Despite recent reductions in solar costs and advancements in technology, financing solar projects is still a challenge. Long-term investment decisions are hampered by the uncertainty in government policies. Project development becomes difficult for small and medium-sized firms because of the lack of availability of financing options. Supply chain disruptions are becoming more common due to the price of commodities and the accessibility of equipment. To encourage additional investment and development, the government, financial institutions, and policymakers must collaborate to create innovative and reliable financing structures, such as green bonds and venture capital funds.

Skilled workforce

The PV sector in India is still in its infancy and requires skilled labour for manufacturing. New PV players are not familiar with the intricacies of the technology, and this calls for a qualified workforce to design, install, operate, and maintain solar power systems. The skill gap in the industry can be bridged by creating specialised training programmes and certification courses.

Grid Stability

Grid integration and stability are affected by the intermittent nature of solar power. Weather plays a crucial role in the creation of solar energy, which causes variations in power output. Advanced grid management technologies and a strong transmission and distribution infrastructure are needed to integrate large-scale solar installations into the electricity grid. To enable a smooth transition to a solar-powered energy system, investments in smart grid technology, energy storage options, and grid modernisation are crucial.

India can expand its solar capacity, reduce emissions, and foster economic growth by addressing these challenges. Collaboration between policymakers and industry leaders is crucial to create an enabling environment for solar PV projects. In our next article, we will explore two key aspects influencing the sector.

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