

Evolution of Solar Photovoltaic Manufacturing in India: Emerging Trends and Development Strategies

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[Abstract: The growing emphasis on solar PV as a major source of renewable energy brings forth important issues regarding its progress and the strategies implemented for its domestic development. While being committed to the adoption of solar energy, countries across the world are trying to address the challenge of high import dependency for solar PV modules by encouraging domestic module manufacturing in an industry marked with high levels of concentration for each of the four components in the supply chain – polysilicon, ingots/wafers, cells and modules. Therefore, national policies are designed to address the challenge of high import dependency by encouraging domestic manufacturing.

India is no exception in its efforts in this direction. The present paper highlights India's strategic approach to strengthening its position in the domestic and global solar energy landscape. Specifically, the paper seeks to review the key government interventions for strengthening domestic solar PV manufacturing through the – (a) imposition of customs tariffs, (b) performance standards, and (c) incentive mechanisms. The introduction of List of Approved Models and Manufacturers of Solar Photovoltaic Modules (ALMM), where the focus has been on quality control through efficiency requirements for consumer protection in a market that was primarily served through imported modules, has contributed to increasing domestic manufacturing of the modules in India. While the non-compliant modules may still be available in the open market, only the ALMM-listed firms are eligible for procurement under programs that mandate ALMM standards as the threshold. The access to a larger market encourages domestic manufacturing. This supports the argument for its continuation. Ensuring long-term stability in domestic solar manufacturing will not only encourage investment in indigenous R&D but also of drive development of equipment and component manufacturing thereby reducing import reliance and strengthening India's renewable energy ecosystem..]

Keywords: solar PV modules, sustainable development, industrial policy, Approved List of Modules and Manufacturers (ALMM), consumer protection, efficiency standards

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