

I Want To Start Solar Power Epc Business In India. Carry Out Detailed Market Research. Analyst Report

August 14, 2025

Comprehensive Market Research Report: Starting a Solar Power EPC Business in India

Executive Summary

India's solar power EPC (Engineering, Procurement, and Construction) market is poised for significant growth, driven by ambitious government targets, declining technology costs, and increasing energy demand. While dominated by large conglomerates, the market exhibits high growth potential, particularly in the rooftop solar segment. Key players offer end-to-end EPC services across utility-scale, commercial & industrial (C&I), and residential segments, with pricing largely undisclosed for large projects. Opportunities exist for new entrants through strategic focus on high-growth niches, transparent pricing, and integrated service offerings that leverage emerging technologies and government incentives.

1. Introduction

This report provides a detailed market research analysis for individuals considering establishing a solar power EPC business in India. It synthesizes existing market data to outline the competitive landscape, identify prevalent market trends and gaps, and offer strategic recommendations for successful market entry and sustainable growth.

2. Market Overview: India Solar Power EPC Sector

2.1. Market Size & Growth Forecasts

The broader India Power EPC Market is projected to grow by USD 22.84 billion between 2023 and 2028, at a Compound Annual Growth Rate (CAGR) of 6.27% (Technavio). More specifically, the overall India Solar Power Market, valued at USD 23.9 billion in 2022, is anticipated to surge to USD 95.3

billion by 2033, demonstrating a robust CAGR of 13.5% (Custom Market Insights). The Rooftop Solar EPC Market in India shows even higher growth potential, valued at USD 2.02 billion in 2022 and projected to reach USD 11.78 billion by 2029, at an impressive CAGR of 28.5% (Maximize Market Research).

2.2. Key Drivers & Trends

- **Rising Electricity Demand:** Driven by rapid industrialization and urbanization.
- **Strong Government Initiatives:** Policies like the National Solar Mission, Production Linked Incentive (PLI) scheme, PM-KUSUM, and the Rooftop Solar Programme provide significant impetus.
- **Declining Solar Panel Costs:** Enhancing the economic viability of solar projects.
- **Ambitious Targets:** India aims for 500 GW of non-fossil fuel electricity capacity by 2030, with 300 GW specifically from solar power. Current installed solar capacity is 73.35 GW (as of Dec 31, 2023).
- **Dominance of Utility-Scale Projects:** Large-scale ground-mounted projects continue to be a significant market segment.
- **Accelerated Growth in Rooftop Solar:** Driven by incentives, rising grid tariffs, and environmental awareness, particularly in residential and C&I sectors.
- **Emerging Focus on Energy Storage:** Integration of Battery Energy Storage Systems (BESS) is gaining traction.
- **Green Hydrogen Initiatives:** Expected to become a future growth area, potentially involving solar power generation.
- **Boosting Domestic Manufacturing:** Supported by PLI schemes.
- **Digitalization in EPC Processes:** Improving efficiency and project management.
- **Floating Solar Projects:** A growing niche, with several major players undertaking such projects.

2.3. Government Initiatives & Investment Landscape

The Indian government's commitment to renewable energy is evident through significant policy support and investment attraction. The PLI scheme, with a ₹24,000 crore allocation, aims to boost domestic solar manufacturing. The PM-KUSUM scheme promotes solar in the agricultural sector, and the Rooftop Solar Programme encourages distributed generation. The renewable energy sector has attracted substantial Foreign Direct Investment (FDI), reaching USD 10.2 billion between April 2000 and September 2023, reflecting investor confidence.

3. Competitive Landscape: Top Solar EPC Players in India

The Indian solar EPC market features a mix of large integrated energy companies, specialized renewable energy firms, and module manufacturers expanding into EPC.

3.1. Company Profiles & Service Offerings Summary

- 1 **Waaree Energies (Waaree Renewables Technologies Ltd.):** Comprehensive EPC for utility-scale, C&I, and industrial projects (ground-mounted, rooftop, floating). Offers O&M. (Source: <https://waareertl.com/>)
- 2 **Tata Power Solar Systems Ltd.:** End-to-end EPC across utility-scale, C&I, and residential segments. Offers O&M. Known for significant cumulative rooftop installations. (Source: <https://www.tatapowersolar.com/>)
- 3 **Adani Solar:** Primarily a solar PV module manufacturer. EPC for Adani Group's large-scale projects is typically handled by Adani Green Energy Limited, not directly by Adani Solar. (Source: <https://www.adanisolar.com/>)
- 4 **Sterling and Wilson Renewable Energy Ltd (SWREL):** Global comprehensive EPC for utility-scale solar (ground-mounted, rooftop, floating), including O&M. (Source: <https://sterlingandwilson.com/solar-epc/>)
- 5 **L&T Solar (Larsen & Toubro):** End-to-end EPC for large-scale, utility-scale solar power plants (ground-mounted, floating). Offers O&M. (Source: <https://www.lntec.com/businesses/power-transmission-distribution/renewable-energy/>)
- 6 **Vikram Solar:** Comprehensive EPC for utility-scale, rooftop, and floating solar projects. Also a module manufacturer. Offers O&M. (Source: <https://www.vikramsolar.com/>)
- 7 **Loom Solar Pvt Ltd:** Primarily manufactures solar panels/kits. Offers EPC/installation services for residential and small commercial rooftop systems. (Source: <https://www.loomsolar.com/>)
- 8 **Bluebird Solar:** Offers comprehensive EPC for On-Grid and Off-Grid solar systems across residential, commercial, industrial, and agricultural sectors. Also a module manufacturer. Offers O&M. (Source: <https://bluebirdsolar.com/>)
- 9 **Sunora Solar:** Provides end-to-end EPC solutions for residential, commercial, industrial, and utility-scale projects (on-grid, off-grid, hybrid). Also a module manufacturer. Offers O&M. (Source: <https://sunorasolar.com/>)
- 10 **Enerparc Energy:** Comprehensive EPC for utility-scale solar parks and corporate PPA solutions. Offers O&M. Focuses on project development and financing. (Source: <https://enerparc.in/>)

3.2. Comparison of Product Offerings

The major players (Waaree, Tata Power Solar, Sterling & Wilson, L&T, Vikram Solar, Enerparc) offer comprehensive, end-to-end EPC services for **utility-scale solar projects**, often including O&M. Their recent activities show a consistent focus on winning large-MW EPC contracts. Some, like Waaree, Tata Power, Sterling & Wilson, and Vikram Solar, also extend their expertise to **rooftop and floating solar**.

Smaller or manufacturing-focused players like **Loom Solar, Bluebird Solar, and Sunora Solar** primarily target the **distributed generation segment (residential, small commercial/industrial)**, offering bundled solar system kits with installation, often encompassing on-grid, off-grid, and hybrid solutions. They leverage their manufacturing capabilities to offer integrated solutions. Adani Solar is distinct as a module manufacturer, with large-scale EPC handled by a group entity.

3.3. Pricing Strategies Analysis

For large-scale EPC projects by major players (Waaree, Tata Power, Adani (via AGEL), Sterling & Wilson, L&T, Vikram, Bluebird, Sunora, Enerparc), specific pricing information is **not publicly available**. This is typical for B2B project-based services where pricing is highly customized based on project scale, complexity, technology, and specific client requirements, determined through competitive bidding processes.

An exception is **Loom Solar**, which provides indicative pricing for residential solar system kits, including installation (e.g., a 5kW on-grid system starting from ₹2,95,000). This suggests that in the consumer-facing or small commercial segment, some level of pricing transparency or package deals might be offered.

3.4. Competitive Advantages

- **Scale & Experience:** Large players like Tata Power, L&T, Waaree, and Sterling & Wilson possess extensive experience in executing multi-MW to GW-scale projects, giving them an edge in large government or utility tenders.
- **Financial Strength & Brand Reputation:** Established conglomerates have the financial muscle to undertake large projects and benefit from strong brand trust.
- **Backward Integration (Manufacturing):** Companies like Waaree, Tata Power, Vikram Solar, Loom Solar, Bluebird Solar, and Sunora Solar, who also manufacture modules, can control supply chain, quality, and potentially reduce costs, offering an integrated solution.
- **Comprehensive Service Portfolio:** Offering full EPC, O&M, and sometimes even project development and financing, creates a one-stop-shop for clients.
- **Global Presence:** Sterling & Wilson's global footprint showcases broader expertise and operational efficiency.

- **Niche Specialization:** Players like Loom Solar, focusing on residential and small commercial systems, can develop specialized expertise and distribution channels for these segments.
- **Technological Prowess:** Ability to implement advanced solutions like floating solar, BESS integration (Vikram Solar), or smart grid compatible systems.

4. Market Trends & Gaps Identification

4.1. Key Market Trends

- **Exponential Growth in Rooftop Solar:** This segment's high CAGR (28.5%) makes it the fastest-growing area, spurred by government subsidies (e.g., PM Surya Ghar Muft Bijli Yojana, which builds on the Rooftop Solar Programme), rising commercial electricity tariffs, and net-metering policies.
- **Integration of Energy Storage (BESS):** Critical for grid stability and enhancing solar reliability, BESS is a rising trend that major players (like Vikram Solar) are already incorporating.
- **Focus on Domestic Manufacturing:** Government incentives (PLI scheme) are pushing for 'Make in India' in solar, creating opportunities for integrated players or partnerships with local manufacturers.
- **Emergence of Green Hydrogen:** Though nascent, its link to renewable energy generation signals a future demand for solar EPC in powering electrolyzers.
- **Digitalization and Automation:** Increasing adoption of digital tools for project design, monitoring, and O&M.
- **Diversification into Hybrid and Off-grid Solutions:** Addressing energy needs in remote areas or for specific industrial applications.
- **Large-scale Floating Solar:** Gaining momentum due to land availability constraints.

4.2. Identified Market Gaps

- **Transparent Pricing for SMEs and Residential:** Lack of publicly available pricing for most players, especially for smaller projects, creates an opportunity for new entrants to offer clear, competitive, package-based pricing.
- **Specialized O&M Services:** While major players offer O&M, there might be a gap for independent, technology-driven O&M providers, particularly for projects post-warranty or for systems installed by smaller, less established EPCs.

- **Niche Geographic/Sectoral Focus:** While major players operate nationwide, there's room for regional specialists or EPCs focused solely on specific sectors like agriculture (PM-KUSUM) or specific industrial clusters.
- **Financing Solutions for Distributed Solar:** While government subsidies exist, streamlined and easy-to-access financing options for C&I and residential consumers could be a differentiator.
- **Advanced Technology Integration for Smaller Projects:** Opportunities for providing EPC services that heavily integrate IoT, AI for predictive maintenance, or smart home energy management systems for residential and small C&I clients.
- **Green Hydrogen Infrastructure EPC:** As green hydrogen projects scale, specialized EPC for the solar component of these complex projects will be in demand.

5. Strategic Recommendations for New Entrants

For a new solar power EPC business in India, a strategic approach focusing on market gaps and high-growth segments is crucial.

1 Strategic Niche Specialization:

* **Focus on Rooftop Solar (Residential & C&I):** Given its 28.5% CAGR and strong government backing, this segment offers the highest growth potential. Target MSMEs (Micro, Small, and Medium Enterprises) with specific needs or residential housing societies.

* **Prioritize Integration with Energy Storage (BESS):** Offer solar-plus-storage solutions, which add value, enhance reliability, and meet growing demand for energy independence.

* **Explore Agricultural Solar (PM-KUSUM):** This government scheme provides subsidies for farmers to install solar pumps and grid-connected solar power plants on barren land, opening a significant market.

1 Differentiated Value Proposition:

* **Transparent & Competitive Pricing:** Unlike major players, offer clear, perhaps tiered, pricing for typical rooftop or small C&I installations. This builds trust and simplifies the sales process.

* **End-to-End Solutions with Strong O&M:** Offer comprehensive packages from feasibility study and design to installation, commissioning, and reliable long-term Operation & Maintenance. Emphasize post-installation support.

* **Customer-Centric Financing:** Partner with banks or NBFCs to provide easy and attractive financing options for customers, easing their initial investment burden.

* **Leverage Technology:** Incorporate smart monitoring systems (IoT-enabled), energy management solutions, and even AI for predictive maintenance to offer superior performance and customer experience.

1 **Build Strategic Partnerships:**

* **Local Developers/Builders:** Collaborate with real estate developers for new housing projects or commercial complexes to integrate solar from the design phase.

* **Financial Institutions:** Secure partnerships for project financing for clients.

* **Quality Component Suppliers:** Establish strong relationships with reliable domestic module and inverter manufacturers, aligning with 'Make in India' initiatives.

* **MSME Associations:** Engage with industry bodies to reach a broad base of potential C&I clients.

1 **Geographic Focus:**

* Initially, concentrate efforts on a specific state or cluster of cities with strong solar policies, high electricity tariffs, and good solar irradiance to build a strong local reputation and operational efficiency before expanding.

1 **Focus on Quality & Reliability:**

* Given the long lifespan of solar assets, emphasizing high-quality components, meticulous installation, and reliable post-sales service will build a strong reputation and generate referrals, crucial for new entrants.

6. Conclusion

The Indian solar power EPC market presents a lucrative opportunity, particularly in the rapidly expanding rooftop solar sector. While formidable competition exists from established players, new entrants can carve out a successful niche by focusing on specific high-growth segments, offering transparent pricing, providing comprehensive and tech-enabled solutions, and forging strategic partnerships. Adherence to quality and a customer-centric approach will be paramount to establishing a strong foothold in this dynamic market.

Sources:

- Waaree Energies: <https://waareertl.com/>
- Tata Power Solar: <https://www.tatapowersolar.com/>

- Adani Solar: <https://www.adanisolar.com/>
- Sterling and Wilson Renewable Energy Ltd: <https://sterlingandwilson.com/solar-epc/>
- L&T Solar (Larsen & Toubro): <https://www.Intecc.com/businesses/power-transmission-distribution/renewable-energy/>
- Vikram Solar: <https://www.vikramsolar.com/>
- Loom Solar Pvt Ltd: <https://www.loomsolar.com/>
- Bluebird Solar: <https://bluebirdsolar.com/>
- Sunora Solar: <https://sunorasolar.com/>
- Enerparc Energy: <https://enerparc.in/>
- Technavio Market Report (2023-2028 data on Power EPC Market)
- Verified Market Research (2022-2030 data on Power EPC Market)
- Custom Market Insights (2022-2033 data on India Solar Power Market)
- IBEF (Installed capacity data as of December 31, 2023)
- Invest India (Renewable energy capacity and 2030 targets as of October 2023)
- Maximize Market Research (2022-2029 data on India Rooftop Solar EPC Market)
- Future Market Insights (Global Rooftop Solar EPC Market)
- Government of India initiatives and investment data (FDI figures).

(All specific data points derived from the "Comprehensive Market Research Data: Solar Power EPC Business in India" provided in the prompt.)