

India Solar Photovoltaics Equipment Market Segmented By DC Voltage (400V, 600V, 1000V & 1500V), By Installation Mode (Ground Mounted and Rooftop) By End-User (Residential, Commercial, Industrial), By Module Type (Monocrystalline, Polycrystalline & Thin Film), By Type (Circuit Configuration, Module Mounting Systems, Solar Charge Controllers, and Others), By Region, Competition, Forecast & Opportunities, 2018-2028F

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Abstracts

India Solar Photovoltaic Equipment Market is growing owing to rising environmental concerns, government initiatives, and investments for research initiatives to minimize reliance on fossil fuels. The increasing energy demands across various end-use industries have led to an increased focus on renewable energy solutions such as photovoltaic cells. Many enterprises are adopting solar photovoltaic equipment as a cost effective solution. Moreover, government assistance in the form of installation cost subsidies and tax breaks, high reliability and efficiency, modular structure with reduced maintenance requirements, performance enhancement through technological advancements; and increased penetration of rooftop installation systems in developing economies are driving the market. Moreover, it is predicted that the use of solar power equipment in non-residential, residential, and utility applications would increase soon, which positively affects the market's growth and is expected to boost the India solar photovoltaics equipment market during the forecast period.

Solar photovoltaics is a form of technology involving a system that generates electric power by using solar cells to convert energy from the sun rays into the flow of electrons

by the photovoltaic effect. Solar photovoltaic (PV) systems are a potential renewable technology that has been expanding rapidly in recent years. It is a type of renewable, inexhaustible, and non-polluting energy that can be produced in a variety of facilities ranging from modest self-consumption generators to big solar plants. A basic PV cell is basically a diode made of p-type and n-type semiconductor materials. Semiconductor materials within a photovoltaic system can vary from silicon, polycrystalline thin films, or single-crystalline thin films. The solar panel in a solar PV system acts as a receptacle for sunlight and transforms incoming photons to electric power. The energy produced by the panel is then converted from direct current (DC) to alternating current (AC) using a solar inverter. The process of energy conversion is mainly occurring in two stages: the generation of electron-hole pairs through light absorption in semiconductor material and the subsequent separation of electrons to the negative terminal and holes to the positive terminal by the structure of the device to supply electricity. A variety of solar PV system designs in various sizes have been created internationally for various uses due to its adaptability and flexibility in building electric energy systems. Solar photovoltaic energy does not produce greenhouse gases that contribute to global warming during the energy generating process, making it the cleanest and most practical option for preventing environmental deterioration. Solar PV systems can be installed on the roofs of residential, commercial, and industrial structures.

The Growth in Investments in Renewable Energy

The rapid growth in investment in renewable power generation capacities is expected to drive the India solar photovoltaic market during the forecast period. The rapid expansion of the market is attributed to the large number of power generation enterprises that are investing in renewable energy sources, especially in the country. For instance, according to the India Brand Equity Foundation (IBEF), renewable energy for new power generation capacity attracted an investment in renewable energy in India of around USD 14.5 Billion in 2022, an increase of 125% over 2021 and 72% higher than in the pre-pandemic period of the 2019-20 financial year. Additionally, to support and promote the development of high-efficiency solar photovoltaic (PV) modules, the government of India started the Production Linked Incentive Scheme (PLI) in 2021 with an investment of INR 4,500 crore or USD 615.71 Million for enhancing India's manufacturing capabilities and enhancing exports. The government-based on "National Programme on High-Efficiency Solar PV Modules" allocated an additional INR 19,500 crore or USD 2,668 Million in 2022 to lessen reliance on imports. Thus, growing investment in renewable energy has anticipated the demand of solar photovoltaics equipment in the market.

Favorable Government Policies and Upcoming Projects

India's push toward manufacturing solar photovoltaic modules, the growing number of net-zero emissions pledges by the country, enterprises reflections toward the growing feeling of urgency and accelerating momentum around sustainable energy transitions are enabling the country to bring favorable policies, schemes, and projects for the growth of solar photovoltaics equipment market. Moreover, Indian government is providing subsidies on installation cost and tax benefits such as waiver of Inter State Transmission System (ISTS) charges for inter-state sale of solar and wind power. Over the years, India has also undertaken a significant number of solar projects such as Rewa Ultra Mega Solar Power, Bhadla Solar Park Project, Kurnool Ultra Mega Solar Project, Pavagada Solar Park Project, and NP Kunta Ultra Mega Solar Park have been developed and more projects like Omkareshwar Reservoir Project, Ramagundam Reservoir and Kutch Solar Park have been commissioned and are planned to develop by 2023. Moreover, the government of India is prioritizing the country's energy demands through solar projects with an aim to achieve a total of 500 GW of renewable energy by 2030, of which 300 GW is expected to come from solar power. The introduction of such projects and such favorable government policies and several schemes in the country are enabling the massive use of solar photovoltaics equipment, which is expected to drive the India solar photovoltaics equipment market during the forecast period.

Increasing Electricity Demand is Driving Solar Photovoltaics Equipment Market

With an aim to phase out the use of diesel for generation of electricity and to contribute to the National Action Plan on climate change and greening of the Islands along with reduction in cost of electricity generation. The increasing energy demands across various end-use industries have led to an increased focus on renewable energy solutions such as photovoltaic cells. India's annual electricity demand is anticipated to increase by 10% to 12% per year over the next decade, making it one of the fastest growing countries in Asia in terms of electricity consumption due to aspects such as large population, robust economic growth, and rapidly deteriorating reserves in existing oil and gas fields. For instance, India's power consumption logged a double-digit growth of over 11% to 121.19 billion units in December 2022 compared to the year-ago period. Therefore, growth in the market is anticipated on account of increasing electricity demand from industrial, commercial as well as residential end-user segments. With favorable initiatives taken in the solar sector by the Government of India, an increasing number of investors and developers are also increasing their investments in solar

industry in different regions across the country which has led to increasing demand for Solar Photovoltaic Equipment in India.

Market Segmentation

India solar photovoltaics equipment market is segmented on the basis of DC voltage, installation mode, end-user, module type, type and region. Based on DC voltage, the market is further split into 400V, 600V, 1000V, and 1500V. Based on installation mode, the market is segmented into ground mounted and rooftop. Based on end-user, the market is categorized into residential, commercial, and industrial. Based on module type, the market is further divided into monocrystalline, polycrystalline and thin film. Based on type, the market is further segmented into circuit configuration, module mounting systems, solar charge controllers, and others.

Market Player

Major market players in the India solar photovoltaics equipment market are Tata Power Solar Systems Limited., Mundra Solar PV Limited., Vikram Solar Limited, Waaree Energies Limited, Jain Irrigation Systems Ltd. EMMVEE Photovoltaic Power Private Limited, V-GUARD Industries Limited, C.R.I. Pumps Private Limited, Shakti Pumps (India) Limited, Kotak Urja Private Limited.

Report Scope:

In this report, the India solar photovoltaics equipment market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

India Solar Photovoltaics Equipment Market, By DC Voltage:

400V

600V

1000V

1500V

India Solar Photovoltaics Equipment Market, By Installation Mode:

Ground Mounted

Rooftop

India Solar Photovoltaics Equipment Market, By End-User:

Residential

Commercial

Industrial

India Solar Photovoltaics Equipment Market, By Module Type:

Monocrystalline

Polycrystalline

Thin Film

India Solar Photovoltaics Equipment Market, By Type:

Circuit Configuration

Module Mounting Systems

Solar Charge Controllers

Others

India Solar Photovoltaics Equipment Market, By Region:

East India

West India

North India

South India

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the India solar photovoltaics equipment market.

Available Customizations:

With the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

Contents

1. Product Overview
 - 1.1. Market Definition
 - 1.2. Scope of the Market
 - 1.2.1. Markets Covered
 - 1.2.2. Years Considered for Study
 - 1.2.3. Key Market Segmentations

2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

3. IMPACT OF COVID-19 ON INDIA SOLAR PHOTOVOLTAICS EQUIPMENT MARKET

4. EXECUTIVE SUMMARY

5. VOICE OF CUSTOMERS

6. INDIA SOLAR PHOTOVOLTAICS EQUIPMENT MARKET OUTLOOK

- 6.1. Market Size & Forecast
 - 6.1.1. By Value
- 6.2. Market Share & Forecast
 - 6.2.1. By DC Voltage (400V, 600V, 1000V & 1500V)
 - 6.2.2. By Installation Mode (Ground Mounted Vs Rooftop)
 - 6.2.3. By End-User (Residential, Commercial, Industrial)
 - 6.2.4. By Module Type (Monocrystalline, Polycrystalline & Thin Film)
 - 6.2.5. By Type (Circuit Configuration, Module Mounting Systems, Solar Charge Controllers, and Others)
 - 6.2.6. By Region (East, South, West, and North)
- 6.3. By Company

6.4. Market Map

7. EAST INDIA SOLAR PHOTOVOLTAICS EQUIPMENT MARKET OUTLOOK

7.1. Market Size & Forecast

7.1.1. By Value

7.2. Market Share & Forecast

7.2.1. By DC Voltage

7.2.2. By Installation

7.2.3. By End-User

7.2.4. By Module Type

7.2.5. By Type

8. WEST INDIA SOLAR PHOTOVOLTAICS EQUIPMENT MARKET OUTLOOK

8.1. Market Size & Forecast

8.1.1. By Value

8.2. Market Share & Forecast

8.2.1. By DC Voltage

8.2.2. By Installation

8.2.3. By End-User

8.2.4. By Module Type

8.2.5. By Type

9. NORTH INDIA SOLAR PHOTOVOLTAICS EQUIPMENT MARKET OUTLOOK

9.1. Market Size & Forecast

9.1.1. By Value

9.2. Market Share & Forecast

9.2.1. By DC Voltage

9.2.2. By Installation

9.2.3. By End-User

9.2.4. By Module Type

9.2.5. By Type

10. SOUTH INDIA SOLAR PHOTOVOLTAICS EQUIPMENT MARKET OUTLOOK

10.1. Market Size & Forecast

10.1.1. By Value

10.2. Market Share & Forecast

10.2.1. By DC Voltage

10.2.2. By Installation

10.2.3. By End-User

10.2.4. By Module Type

10.2.5. By Type

11. MARKET DYNAMICS

11.1. Drivers

11.2. Challenges

12. MARKET TRENDS & DEVELOPMENTS

13. COMPANY PROFILES

13.1. Tata Power Solar Systems Limited

13.1.1. Business Overview

13.1.2. Key Revenue and Financials (If Available)

13.1.3. Recent Developments

13.1.4. Key Personnel

13.1.5. Key Product/Services

13.2. Mundra Solar PV Limited

13.2.1. Business Overview

13.2.2. Key Revenue and Financials (If Available)

13.2.3. Recent Developments

13.2.4. Key Personnel

13.2.5. Key Product/Services

13.3. Vikram Solar Limited

13.3.1. Business Overview

13.3.2. Key Revenue and Financials (If Available)

13.3.3. Recent Developments

13.3.4. Key Personnel

13.3.5. Key Product/Services

13.4. Waaree Energies Limited

13.4.1. Business Overview

13.4.2. Key Revenue and Financials (If Available)

13.4.3. Recent Developments

13.4.4. Key Personnel

- 13.4.5. Key Product/Services
- 13.5. Jain Irrigation Systems Limited
 - 13.5.1. Business Overview
 - 13.5.2. Key Revenue and Financials (If Available)
 - 13.5.3. Recent Developments
 - 13.5.4. Key Personnel
 - 13.5.5. Key Product/Services
- 13.6. EMMVEE Photovoltaic Power Private Limited
 - 13.6.1. Business Overview
 - 13.6.2. Key Revenue and Financials (If Available)
 - 13.6.3. Recent Developments
 - 13.6.4. Key Personnel
 - 13.6.5. Key Product/Services
- 13.7. V-GUARD Industries Limited
 - 13.7.1. Business Overview
 - 13.7.2. Key Revenue and Financials (If Available)
 - 13.7.3. Recent Developments
 - 13.7.4. Key Personnel
 - 13.7.5. Key Product/Services
- 13.8. C.R.I Pumps Private Limited
 - 13.8.1. Business Overview
 - 13.8.2. Key Revenue and Financials (If Available)
 - 13.8.3. Recent Developments
 - 13.8.4. Key Personnel
 - 13.8.5. Key Product/Services
- 13.9. Shakti Pumps (India) Limited
 - 13.9.1. Business Overview
 - 13.9.2. Key Revenue and Financials (If Available)
 - 13.9.3. Recent Developments
 - 13.9.4. Key Personnel
 - 13.9.5. Key Product/Services
- 13.10. Kotak Urja Private Limited
 - 13.10.1. Business Overview
 - 13.10.2. Key Revenue and Financials (If Available)
 - 13.10.3. Recent Developments
 - 13.10.4. Key Personnel
 - 13.10.5. Key Product/Services

14. STRATEGIC RECOMMENDATIONS

15. ABOUT US & DISCLAIMER

(Note: The companies list can be customized based on the client requirements.)

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