

# Solar Energy -

## Changing millions of lives in India

Renewable energy is one of the most significant apparatus of infrastructure and crucial for economic growth and welfare of nations. The subsistence and expansion of adequate infrastructure are vital for the unremitting growth of the Indian economy.

India's energy sector is one of the most crucial segments in the world. Electricity still remains dream for many rural and semi-urban regions. Along with this demand has increased rapidly and is expected to rise further in the future. In order to meet the increasing demand for electricity in the country, massive addition to the existing generating capacity is required.

Solar energy has become one of the most developed renewable energy sources over the years. For the countries like India, supplying energy in an efficient and cost-effective manner is an extremely exigent task. Despite considerable harnessing of fossil fuel reserves and hydel power, the gap between supply and demand for energy is ever increasing. The possible option to bridge this gap would be by utilizing solar energy extensively, both directly and indirectly. There are few solar applications that can be consumed directly and indirectly through following products.

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Solar water heaters are a major source of saving energy and money, as being environment-friendly is the hallmark of these products. Better infrastructure and piped water facility in rural India will help encourage people to use solar water on a regular basis. Commercial and industry segments are large consumers of hot water, they utilize a large amount of traditional energy sources like electricity or fuels like diesel or gas, which are not only expensive but not environment friendly as it results in an emission of gases like CO<sub>2</sub>. However, lately there has been a notable shift among commercial users where many of them have started showing preferences to opt for green products like solar water heaters wherever it can be integrated it with their existing channels.

### Rural Electrification - Solar Lamps and Lightings

India has always faced the issue of electricity infrastructure and major sections of its populace are still extant off-grid. In the past few years, cheap solar technology developments have been a boon, where potential alternative of electricity is distributed to local-grid clusters. At present, India has around 1.2 million solar home lighting systems and 3.2 million solar lanterns are sold or distributed, making India a leading market in Asia for solar off-grid products.



### Solar PV Water Pump

In recent years, an increase in development of industrial, residential and agricultural industries have been witnessed along with lower operation and maintenance cost, and amplified demand in the solar pump market. Studies estimate India as a potential player in solar poly voltaic water pumps for irrigation substantially improving the financial health of State Electricity Boards. Believing that solar pumps not only will provide an exceptional opportunity to improve productivity but also significantly improve the energy security of the country. With the emergence of Pay Per Use model, multiple farmers can benefit from shared usage of solar pump infrastructure, resulting in deep market penetration.

With the 'Smart Cities' plan already in place, the concept of 'Solar Cities' is also making its way into the minds of people. India's Ministry of New and Renewable Energy (MNRE) has initiated a programme focusing on solar energy generation involving 100 small townships,

industrial towns and institutions who follow the model of 'green campuses'. With the government making rooftop solar PV systems mandatory, profound response and usage of solar water heaters, solar air conditioning, dryers, cookers, lanterns, pumps, battery operated vehicle and hybrid systems are expected to be a norm for the future generation of Indians.

The Government of India has identified this sector as a key segment, focussing on sustained industrial growth.

- Around 17418 MW solar parks are expected across 20 states, as announced by the central government, which would be an addition to the large solar PV installations.
- An investment of about Rs. 6500 crore has been made by Government of Odisha, as they plan to set up 1600 MW solar power park under public-private partnership.
- 15,000 MW of grid-connected solar power projects of National Thermal Power Corp Ltd (NTPC) is being approved by the Union Cabinet of India.

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We believe that the solar products will be dominated by industrial consumers for next five years, whereas domestic residential consumers will be contributing a majority of solar products within a decade.

