Solar power in India

What is the need for solar power?

\n\n

\n
- Sunlight received by earth in one hour is enough to meet the annual energy needs of all people worldwide.
\n
- Global warming has to be curbed to a 1.5 degrees Celsius rise, in accordance to the Paris Agreement of 2015.
\n
- India is a signatory of this accord, solar energy is vital to meet these commitments.
\n

\n\n

What are the advantages?

\n\n

\n
- **Safe -** Nuclear power pollutes water and land and has caused environmental catastrophes, use of solar energy will eliminate these unsafe consequences.
\n
- **Combats Climate Change -** Solar power can restrict climate change as it produces no carbon emissions.
\n
- **Small and Decentralized Electricity Source -** Electricity can be generated using photo - voltaic cells installed on roof - tops of individual buildings.
\n
- **Green energy in rural area -** This is crucial for agri - business in farms for running irrigation, greenhouses, and crop and hay dryers, making agriculture risk - free.
\n
- **Cheap and Reliable Energy Source -** The price of solar PV panels have decreased by 60% and the cost of the solar electricity system by 50%.
\n

- **Employment Generation -** such as small businesses engaged in installations, followed by solar designers, sales person and service professionals.
\n

\n\n

What are the Government initiatives?

\n\n

\n
- The National Solar Mission phase I was launched in 2010.
\n
- The Mission has set the ambitious target of deploying 20,000 MW of grid connected solar power by 2022.
\n
- The state governments have also announced solar policies to promote solar energy technologies in their respective states.
\n
- Phase II of the mission includes following schemes
\n

\n\n

\n
- **Solar Park Scheme -** Scheme for Enhancement of capacity from 20,000 MW to 40,000 MW for Development of Solar Parks and Ultra Mega Solar Power Projects.
\n
- **CPSU Scheme -** Implementation of Scheme for setting up of 1000 MW of Grid Connected Solar PV Power Projects by Central Public Sector Undertakings (CPSUs).
\n
- **Defence Scheme -** Scheme for setting up over 300 MW of Grid Solar PV Power Projects by Defence Establishments under Ministry of Defence and Para Military Forces
\n
- **VGF Scheme (5000 MW) -** Scheme for setting up of 2000 MW Grid - Connected Solar PV Power Projects with Viability Gap Funding (VGF)
\n
- **Canal Bank / Canal Top Scheme -** Pilot - cum - Demonstration Projects for Development of Grid Connected Solar PV Power Plants on Canal Banks and canal Tops
\n

\n\n

Areas of concern

\n\n

\n

- **Lack of manufacturing firms** - This is due to the fact that the cell manufacturing companies in the US, China, Taiwan, Malaysia and EU are dumping their cells in Indian markets at lower costs.
\n
- **Absence of Proper Financing Mechanism -** National banks provide debt at a rate much higher than what is available in the developed nations.
\n
- Due to NPA issues there is no flow of funds to solar infrastructures.
\n
- **Availability of Land and Its Possession -** Finding a suitable land which must be non - agricultural and unused land with good solar irradiance is challenging.
\n
- **Lack of skilled workforce -** the solar energy is unlike the other renewable and non - renewable energy sources lags in skilled manpower.
\n
- **Environmental concerns -** Recently a capacity in Rajasthan was stalled after it was found that 40% of the land allotted was part of a lake which would get submerged when the water level rises during monsoon.
\n
- That could have also result in a major ecological issue, as that lake is the second largest breeding ground for flamingos in India
\n
- **Evacuation of power -** Many regions in some states don’t have required power grid. It is responsible for very high Aggregate Technical and Commercial losses.
\n
- There is no set up for exclusive transmission lines for evacuating energy from renewable energy sources.
\n

\n\n

What should be done?

\n\n

\n

- **Use of waste lands -** Based on the assumption that 3% of wasteland in

each state can be used for solar power projects.
\n

- **Promoting decentralized plants -** To promote the usage of rooftop solar power and other solar appliances schemes should be introduced, based on the existing schemes for LED distributions.
\n
- **Manufacturing -** The production of flat glass and its raw materials must expand to eliminate supply constraints or future imports
\n
- **Hybrid solar plants -** Solar panels can be located in the space between the towers of wind - power plants.
\n
- This type of plants are already setup in Himalayan regions this can be extended to other terrains.
\n
- **Financing mechanisms -** Ministry of finance should come up with innovative financing measures to promote these capital - intensive renewable energy projects.
\n
- Financing measures such as clean energy fund, generation based incentive linked loan repayment and green bonds are some of those.
\n

\n\n

\n