Solar power in India

What is the need for solar power?

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

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- **Safe -** Nuclear power pollutes water and land and has caused environmental catastrophes, use of solar energy will eliminate these unsafe consequences.
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- **Combats Climate Change -** Solar power can restrict climate change as it produces no carbon emissions.
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- **Small and Decentralized Electricity Source -** Electricity can be generated using photo - voltaic cells installed on roof - tops of individual buildings.
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- **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.
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- **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%.
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- **Employment Generation -** such as small businesses engaged in installations, followed by solar designers, sales person and service professionals.
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What are the Government initiatives?

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- The National Solar Mission phase I was launched in 2010.
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- The Mission has set the ambitious target of deploying 20,000 MW of grid connected solar power by 2022.
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- The state governments have also announced solar policies to promote solar energy technologies in their respective states.
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- Phase II of the mission includes following schemes
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- **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.
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- **CPSU Scheme -** Implementation of Scheme for setting up of 1000 MW of Grid Connected Solar PV Power Projects by Central Public Sector Undertakings (CPSUs).
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- **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
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- **VGF Scheme (5000 MW) -** Scheme for setting up of 2000 MW Grid - Connected Solar PV Power Projects with Viability Gap Funding (VGF)
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- **Canal Bank / Canal Top Scheme -** Pilot - cum - Demonstration Projects for Development of Grid Connected Solar PV Power Plants on Canal Banks and canal Tops
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Areas of concern

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- **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.
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- **Absence of Proper Financing Mechanism -** National banks provide debt at a rate much higher than what is available in the developed nations.
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- Due to NPA issues there is no flow of funds to solar infrastructures.
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- **Availability of Land and Its Possession -** Finding a suitable land which must be non - agricultural and unused land with good solar irradiance is challenging.
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- **Lack of skilled workforce -** the solar energy is unlike the other renewable and non - renewable energy sources lags in skilled manpower.
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- **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.
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- That could have also result in a major ecological issue, as that lake is the second largest breeding ground for flamingos in India
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- **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.
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- There is no set up for exclusive transmission lines for evacuating energy from renewable energy sources.
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What should be done?

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

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