SOLAR FARMING IN INDIA

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INTRODUCTION

Solar energy is defined as the radiation from the sun that reaches the earth. It is the most widely obtainable source of energy. The sun is our planet's power station and the source of all energy. Capturing solar energy for a variety of applications has recently become a focus of research. India is the world leader in wind power generation, but there is still room for improvement in the solar energy sector. Solar energy technologies provide energy independence and long-term development. Stand-alone solar and wind energy systems can provide low-cost power for lighting, communication, fans, refrigerators, and water pumping, among other things. Installation of photovoltaic (PV) systems for remote sites has expanded to include rural economic development promotion. Ex: Thar Desert (35000 km^2) has been set aside for solar power projects, sufficient to generate 700 GW to 21000 GW.

Solar energy is widely used in the form of solar lamps, solar water heaters, solar cookers, and solar pumps, and solar energy is widely used to heat buildings and provide low temperature heat for industry and agriculture. India has a large area available for solar plant installation in the form of deserts, lakes, and rivers.

APPLICATIONS OF SOLAR FARMING IN DEVELOPING COUNTRIES LIKE INDIA

Water heating: Solar thermal technology is most commonly used for domestic water heating. Worldwide, there are hundreds of thousands of domestic hot water systems in use. Drain-back, Drain-down, and Integrated Collector and Storage (ICS) systems are the most effective solar heaters.

Solar Drying: Drying grains, cereals, and pulses properly can ensure effective storage and reduce losses. Grain, coffee, tobacco, fruits, vegetables, and fish all require controlled drying. In India, approximately 35% of all agricultural produce worth approximately 500,000 million dollars goes to waste during the post-harvest period. This waste can be controlled by using proper techniques.

Solar Distillation: Distillation is a process that allows some components of a solution to be purified based on differences in volatilities. In general, when solutes have much lower volatilities than the solvent, distillation is performed by evaporating the solvent in one region of the device and then condensing the vapour in another to obtain the purest solvent possible. It is capable of producing a large amount of fresh water.

Solar Photovoltaic: Solar panels are used in photovoltaic systems (PV systems) to convert sunlight into electricity. Photovoltaics offer practical solutions to a wide range of power supply issues in both space and remote terrestrial applications. Portable electronic devices, in addition to larger power applications, may charge their batteries or receive power directly from solar cells. Because

PV modules are solid state and have no moving parts, they are extremely reliable. Additionally, Silicon PV cells manufactured today have a useful service life of more than 40 years. As a result, solar panels are made of silicon.

CURRENT SCENARIO OF SOLAR FARMING IN INDIA

The state Gujarat has made more progress in the development of solar energy. At Charaka Village, the state has officially opened the largest solar park in Asia. Out of a planned capacity of 500 MW, the park currently has a generating capacity of 214 MW. On the branches of the Narmada Canal, the state has also proposed using solar panels to generate electricity. Gujarat is second to Rajasthan in terms of solar energy production and is moving in the direction of the development. The biggest solar farm in the world is Bhadla Solar Park. The constructing, which takes up 14000 acres. The solar farm is situated in Rajasthan's Jodhpur and has a 2.245 GW capacity. In accordance with the Rajasthan Solar Energy Policy of 2011, it was developed over four phases as part of the Ministry of New & Renewable Energy (MNRE) programme. The facility uses Rajasthan, a desert state in India, and its dry heat to create renewable and clean energy.

Fig.1(b): Charaka Village Solar Park (Gujarat).

Fig. 1(b): Satellite view of Bhadla Solar Park.

The Rajasthan state is producing high solar energy compared to all another states. This state is producing amount of 2245.0 MWp. The park is already generating 1614MW solar power out of its planned capacity of 2245 MW.

State	MWp	State	MWp	State	MWp
Andhra Pradesh	21.8	Chhattisgarh	4.0	Gujarat	654.8
Karnataka	9.0	Maharashtra	20.0	Rajasthan	2245.00
Punjab	9.0	Tamil Nadu	15.0	Haryana	7.8

IMPORTANT YOJNA FOR SOLAR INSTALLATION.

A tool for achieving Prime Minister Narendra Modi's goal of doubling farmers' incomes by the year 2022, SKY (Suryashakti Kisan Yojana) will also give farmers access to 12-hour power during the day. The farmers have the option of selling any excess electricity they generate to the government over the grid. The State and Central Governments will give farmers a 60% subsidy on the cost of the project (installing solar panels) in order to implement this scheme.

Other: Surja Urja Rooftop Yojna, PM Solar Panel Yojna, CM Solar Pump Yojna

CONCLUSION

The use of solar energy on farmland demonstrates a variety of approaches that address goals such as renewable energy distribution, water use efficiency, and agricultural productivity. To some extent, fossil fuels currently meet all global energy needs. The use of renewable energy sources has the potential to reduce pollutant emissions into the atmosphere. Solar energy exploration, in particular, can play a critical role in both developed and developing countries. There are more than 40 Major Solar Plants in India which generated at least 10 MW of Power. Solar electricity generation from 2016 to 2022 has increased to 73.48 TWh from 12.09 TWh (Terawatt-hour), and by looking towards the problems the india can be largest sector of proving and using the solar energy, and save enormous amount of electricity.