Assignment 1

Problem : One of the widely used source of renewable energy is solar energy, which highly depends on consistent sunlight. The regions which frequently do posses cloudy weather, insufficient daylight, hazy winters lead to shortage of generating power. This directly impacts the grid installers and consumers as well.

As sustainable energy is the future, it is important to move towards clean energy solutions and develop innovative strategies to adress the problem.

Executive Summary Snapshot

Being sustainably consious, our main motive is to improve the performance of solar panels in low-light conditions, thus promoting use of renewable energy. Advanced models 'll be implemented under varying weather conditions.

The Research shows that during hazy conditions the ranges of power generator reductions are 20% to 60%. Even extreme heat exposure degrades the cells (solar), Bifacial solar panels have 10 to 20% better outcome than monfacials. The research indicates that climatic factors affect a lot. Thus, innovation & investments in these solutions is important.

The Scope of the proposed project is to identify the problem and develop and built hybrid energy storage systems to ensure continuous power supply irrespective of weather condition And evaluate the advance solar technology to improve designs for efficient operations.

The Process holds of firstly having or collecting data based on analysis of various weather conditions. Redesigning panels and then testing and take action to enhance reliability.

Project Description

The purpose of this project is to enhance the reliability and sustainability of solar energy systems. Improve the power generation even in hazy conditions. Irrespective of the weather conditions there should be consistent power generation.
The current solutions state using bifacial & thin film solar panels. Batteries (lithium-ion) i.e. energy storage systems for later use or combining solar with wind power to ensure reliability.

The challenges consist of higher costs of bifacial ones and their installation at right angles. And to achieve appropriate policies to encourage widespread adoption of these technologies

The reason behind to work or take initiatives is to ensure consistent power supply, energy savings. It is something by which working locally we can achieve global challenges & find solutions. Undertaking this project, we ensure the benefits of consumers as well the environment.

Project Scope

The Project Goals are as follows :-

1) Improve efficiency of solar panels
2) Develop solutions for energy storage
3) Design predictive models for weather conditions.

The Task is to observe the performance of panels and inbuilt smart grid systems, take feedback and work on the flaws.

Our Main Goal is to achieve primarily 40-50% improvement in variable weathers. Ensure that the predictions are accurate and manage installments.

The Deliverables report on improvements, prototyping enhances chances to reduce flaws

Deadlines :-

Data collection / analysis : 3 months
Prtype designing & Testing : 5-6 months
Project completion :- within 11-12 months

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Business Drivers

The project is undertaken to bring down the market to shift into renewable sources and divert them from use of fossil fuels.