



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 8 Issue: IV Month of publication: April 2020

DOI:

www.ijraset.com

Call: © 08813907089 E-mail ID: ijraset@gmail.com



ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429 Volume 8 Issue IV Apr 2020- Available at www.ijraset.com

Increase the Efficiency of Solar Panel

Swapnil Namekar¹, Shashi Kumar Ranjan²

¹Assistance Professor, ²Student, Department of Electrical Engineering, Bharati Vidyapeeth Deemed University, Collage of Engineering, Pune India

Abstract: The interest of photovoltaic frameworks is because of 100% spotless, sustainable power source. It lessens dependence on oil, coal and petroleum gas for power creation. Sunlight based vitality is totally characteristic, it is considered as a perfect vitality source.

In this way, introducing sun powered boards in your house is a viable plan to use the normal light of the sun in the most ideal manner and convert it into vitality. Sun based boards don't work unvaryingly under all conditions and there are sure factors that can influence effectiveness.

I. INTRODUCTION

Sun powered vitality is one of the most maintainable vitality sources, changing over light into power. Sun oriented boards power structures with power, permitting laborers to carry on their everyday assignments with a sustainable power source. Outfitting an office with sun oriented boards is perhaps the greenest move to make inside a framework. Not exclusively are sun-powered boards useful for nature—killing ozone-depleting substance outflows and declining the utilization of petroleum products—they additionally get a good deal on electric bills.

Sunlight based boards don't work unvaryingly under all conditions and certain variables can influence productivity. Figure out how to improve sun based board effectiveness and increment your vitality source with these four hints.

A. Shade

- 1) Issue: Shade is a significant inhibitor for sun based boards, as it is a type of sun blockage. The shade isn't proportionate to overcast skies, albeit such days yield less beneficial power emission from the boards, they don't close them off from daylight. Boards despite everything get daylight and make the change, only a little one, under dim condition.
- 2) Why: The explanation conceals bars' effectiveness for sun based boards lies by the way they are introduced inside with one another. A solitary board has groupings of cells wired for expanding the voltage. If even a minuscule piece of the board has concealed, the entire module will have less vitality change.
- 3) Arrangement: Genuine shade, or the one generally unsafe for sun based boards, appears as close by trees and infrastructural obstructions like smokestacks and vents. While it's about difficult to move a smokestack, high-rising trees ought to be cut, if not expelled inside and out.

B. Climate

- 1) Issue: Climate conditions make up the main consideration in sunlight based board execution. Day off hail is annoying components that repress sunlight based boards, however not really as to stop their activity completely. Snowboards hold enough warmth to liquefy off the snow stopped on them, while hail can't get through the sun oriented board glass, as most U.S. boards are prepared to withstand a hailstone 1" or littler at 50+ mph. Shockingly, the warm temperature is a significant obstruction to sun-powered board proficiency.
- 2) Why: However rather odd, warm climate isn't as helpful for vitality transformation as one would suspect. A UK study found a 1.1% drop in sun based board transformation for each expansion of degrees Celsius after 42 degrees, or 107 degrees Fahrenheit. The lessening underway happens during summer climate, beginning at 87-91 degrees Fahrenheit. The explanation high temperatures cause this negative impact is because power creation depends on the development of electrons.
- 3) Arrangement: Genuine shade, or the one generally unsafe for sun oriented boards, appears as close by trees and infrastructural obstructions like stacks and vents. While it's about difficult to move a smokestack, high-rising trees ought to be cut, if not expelled inside and out.



International Journal for Research in Applied Science & Engineering Technology (IJRASET)

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429 Volume 8 Issue IV Apr 2020- Available at www.ijraset.com

C. UPKEEP

- 1) Issue: Sun based boards are not powerful to basic clogs like residue and soil.
- 2) Why: These stops up obstruct the sun oriented cells, bringing about less daylight introduction and lesser productivity. They develop after some time and the more blockage, the less viable the sun based boards will be
- 3) Arrangement: With regards to the upkeep of sunlight based boards, there isn't a lot of support required. Sun-powered board conservation calls for light upkeep like customary cleaning.

Residue can be evacuated through lathery water and wipes, and now and then downpour alone will get out the residue roosted on the module. There is no standard for cleaning recurrence and deciding how frequently you clean your sun based boards are subject to their capacity yield. As they age, cleaning them all the more routinely will keep them liberated from the soil, grime, and different obstacles.

D. Orientation

Issue: Sunlight based boards confronting a specific way, similar to east or north, are considered to have poor sun based board direction.

Why: Sun-powered board direction alludes to the situation of the sun based boards as far as the heading. It very well may be risky because they are dependent on daylight and certain positions don't give them the ideal daylight.

Arrangement: Sun oriented boards should be situated in a manner that permits the most measure of daylight conceivable. In the U.S., they ought to confront the south. They likewise should confront west, particularly during top force requests, which, as previously mentioned, are in the mid-year.

There have been discussing battling over which bearing is better, south or west. At last, sunlight based board direction benefits by both westbound and southward situated boards. The main contrasts in the transformation between the two directions were to a limited extent dependable when period. For instance, 3-7 pm has the greatest daylight transformation when the boards face west. Throughout the mid-year, west-bound boards additionally got more prominent change. In any case, every year, the best position was resolved to be at around 219 degrees.

E. Maintain Your Solar System Properly

Another successful method to keep up your sun based board is to keep it in great working condition. Galaxies can lose productivity effectively if not looked after appropriately.

You have to clean them like clockwork to ensure they are liberated from earth and rust. You ought to likewise guarantee that they are in direct contact with the sun for upgraded execution. If you need, you can get proficient help for your sun powered boards each couple of years. Getting a specialist to check your heavenly bodies isn't as costly as you would have suspected. An expert encourages you in distinguishing shrouded issues as well as fixes the issues before they deteriorate and start costing you cash. Along these lines, keep your heavenly bodies kept up to improve their sturdiness and to keep your users at the very least.

F. Keep Your Sun Based Boards Clean

On the off chance that residue amasses on the glass surface of your sun oriented board, it lessens the board's effectiveness. Accordingly, the daylight that would typically arrive at the photovoltaic cells gets dispersed. It is in this manner significant that you guarantee that no residue and soil gathers on the outside of your cell.

REFERENCES

- [1] K.A. Moharram M.S. Abd –Elhaldy, H.a. Kandil, H. EISherif,"Enhancing the performance of PV PANELS by water cooling", Ain Shams Engineering Journal(2013)4,869-877
- [2] Mr. Sayaran A. Abdulgafer et al. review article on "Improving the efficiency of polycrystalline solar panel by water emersion method" International Journal for innovative research in science, ISSN 2319-8753, Volume 3, Issue 01, January 2014
- [3] Mr. Saurabh Mehrotra et al. review article on "Performance of a solar panel with water immersion cooling technique" International Journal of Science, Environment ISSN 2278-3687 (O), Volume 3, No 3, 2014, 1161 1172
- [4] Mr. Dinesh S. Borkar, Dr. Sunil V prayagi, Ms. Jayashree Golmare, "Performance Evaluation of Photovoltaic solar panel using Thrmaoelectric cooling, International Journal of Engineering research volume No.3, Issue No.9, pp:536-539.
- [5] Catain George Popovici, Sebastian Veleriu Hudisteanu, Theodor Dorin Mateescu, Nelucristian Chereches, "Efficiency improvement of photovoltaic panels by using air cooled heat simks", sustainable solution for enrgy and environment, EENVIR_YRC 2015, Bucharest, Romana, energy procedia 85(2016)425-432.

805





10.22214/IJRASET



45.98



IMPACT FACTOR: 7.129



IMPACT FACTOR: 7.429



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call: 08813907089 🕓 (24*7 Support on Whatsapp)