

Solar photovoltaic panel cleaning issues

What happens if a solar panel is not cleaned?

Non-availability of proper cleaning and insulation methods can cause significant loss in PV system efficiency. Kazem et al. reported that the electrical efficiency of the solar panels drops from 16% to 8% if they were not cleaned for 45 days, and after applying appropriate cleaning methods the PV cell will restore its original efficiency.

How to clean a PV panel?

Consequently, specific cleaning techniques are required to mitigate the accumulated dust and restore the plant's efficiency. The most popular PV panel cleaning techniques include natural, manual, automatic, and electrostatic cleaning. Each cleaning technique is associated with both positive and negative impacts.

Do solar panels need to be cleaned?

Still, things like snow, smog, dust, or dirt can cause a dip in your production, especially during times of low rain. In that case, cleaning your solar panels would be beneficial. Your best and safest option is to hire a professional cleaning service, which your installer should be able to recommend.

What happens after a PV panel is cleaned?

After cleaning the PV panel, the PV panel will restore its full efficiency and will produce clean energy that can then be distributed (SDG 7). On the other hand, using natural resources to clean PV panels will limit economic growth (SDG 8).

Which cleaning technique is best for solar PV panels?

The TOPSIS method is employed to compare the cleaning techniques and rank them from most favored to least favored. Manual cleaning of the PV panels is the highest ranked cleaning technique according to the TOPSIS ranking. The efficiency and power output of photovoltaic (PV) panels are vital to the solar PV plant.

Why are solar panels not working properly?

Dust accumulation, dirt, and bird droppings are some leading causes that lead to the poor functionality of solar panels. This paper reviews the most recent and common cleaning systems designed and fabricated to overcome problems associated with dust accumulation problems.

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