

# Soiling Losses - Impact on the Performance of Photovoltaic Power Plants



- PV soiling continues to be a **global issue**, and its heterogeneity adds to O&M considerations and costs.
- A variety of **on-site monitoring** methods can inform cleaning decision timelines.
- **High latitude installations** are increasing and require new approaches for snow cover.
- **Model optimization and validation** are still crucial needs for PV soiling phenomenon.



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- After irradiance, soiling is the single most influential factor impacting solar photovoltaic (PV) system yield and is estimated to cause a loss of annual PV energy production of 3-5%, corresponding to an economic loss on the order of 3-5 billion euros from higher operating, cleaning, and/or capital expenditures.
- Soiling is a factor not only in equatorial regions around Africa and Asia with high atmospheric suspended particle densities but also in high latitude regions due to snow cover as installations proliferate in these locations.
- PV soiling is highly heterogeneous, both at the module and plant level, and requires multi-sensor networks to accurately assess soiling rates and cleaning decision timelines. Modelling approaches are still being refined and require additional data for validation.

