

Area: Performance and reliability of PV modules

ESTABLISHMENT OF AN EMPIRICAL COEFFICIENT REPRESENTS THE IMPACT OF DUST ON SHORT CIRCUIT CURRENT FOR A MONO-CRYSTALLINE PV PANEL UNDER SPARSE ENVIRONMENTAL CONDITIONS.

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Dust has the negative effect of reducing power output from the photovoltaic modules once it started accumulating on its top, causing in particular a significant drop in magnitude of short circuit current. In this study, that have been carried out in Qatar, a statistical analysis has been conducted on a medium sized sample data collected from 30 hours of indoor experimental work to obtain an empirical coefficient similar to the temperature coefficients of short circuit current and open circuit voltage, usually provided by manufacturers. This coefficient will be named dust coefficient of short circuit current and it will cover a determined range of environmental conditions and soiling amounts; as it is bounded by the testing conditions and the statistical model prediction limits.