1st International Conference on Sustainable Energy Systems

24, 25 and 26 April 2025, Morocco (Online)

Introduction to soiling in photovoltaics and modelling approaches

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Summary:

Soiling in photovoltaic (PV) systems is defined as the accumulation of dirt, dust, and other contaminants on panel surfaces. It plays a key role in the reliability and profitability of photovoltaics, as it can significantly affect energy production and lead to higher operational costs for cleaning and maintenance. This presentation describes the most common modeling approaches that enable investors and yield assessors to estimate soiling losses and optimize cleaning schedules. Additionally, the presentation highlights the findings of a study aimed at mapping the geographical distribution of soiling losses in Europe by applying an environment-based soiling model. The results demonstrate the impact of soiling on the profitability of PV systems across Europe and provide a baseline for creating a first-of-its-kind map with cleaning recommendations.