An optimal integrated maintenance of power forecasting system for photovoltaic plants

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Abstract:

This present work aims to forecast photovoltaic plant production as well as its maintenance; two critical features for the energy management. For the first part, we will explore the correlation between the photovoltaic power production and the meteorological data such as temperature, humidity and irradiance. this will allow us to develop a machine learning algorithm that forecasts one day ahead PV production using the meteorological data as inputs.

In the second part, we will focus on the maintenance of the PV plant. We will study the reliability of its most important components. Then we will explore the influence of the environmental conditions in their most critical failures in order to integrate it to their reliability. Finally, we will propose a preventive maintenance plan for a ten-year horizon.

Keywords:

Maintenance; production; Reliability; photovoltaic plant production;