

Solar photovoltaic power generation in France by 2050 : Sensitivity tests to climatic aspects, technology and location

The part of solar PV power generation has been increasing all around the world over the last few years. With a current growth rate of 20% per year, it accounted for 3.6% of the global electricity generation in 2021 and it is expected to reach 15% by 2030.

Through its announced “Solar Plan”, EDF aims at becoming one of the world leader of solar PV power generation. It starts with France, with an ambition of holding 30% of the market shares by 2035, by increasing installed PV capacity from 10 to 30 GW.

This development has to be thought out and planned. **Different scenarios taking into account parameters which are known to impact PV solar power generation** (e.g. evolution of climatic variables such as temperature or solar radiation, improvement in cell technology, development of new type of installations, location...) **have thus to be built.**

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Main objectives

The training should help assess the impact of given parameters on solar PV power generation in France, including:

- the accuracy given to the description of the installed capacity (statistical distribution over France or detailed description of current and expected installations at a local scale);
- the evolution of climatic variables such as radiation, cloud cover, temperature... in a context of climate change, using the CMIP6 database;
- the expected evolution of solar PV technologies, including cell technology and type of installation (agriPV, tracking, ...).

This should prepare for a PhD to come in September 2023, which aims at extending the study to Europe.