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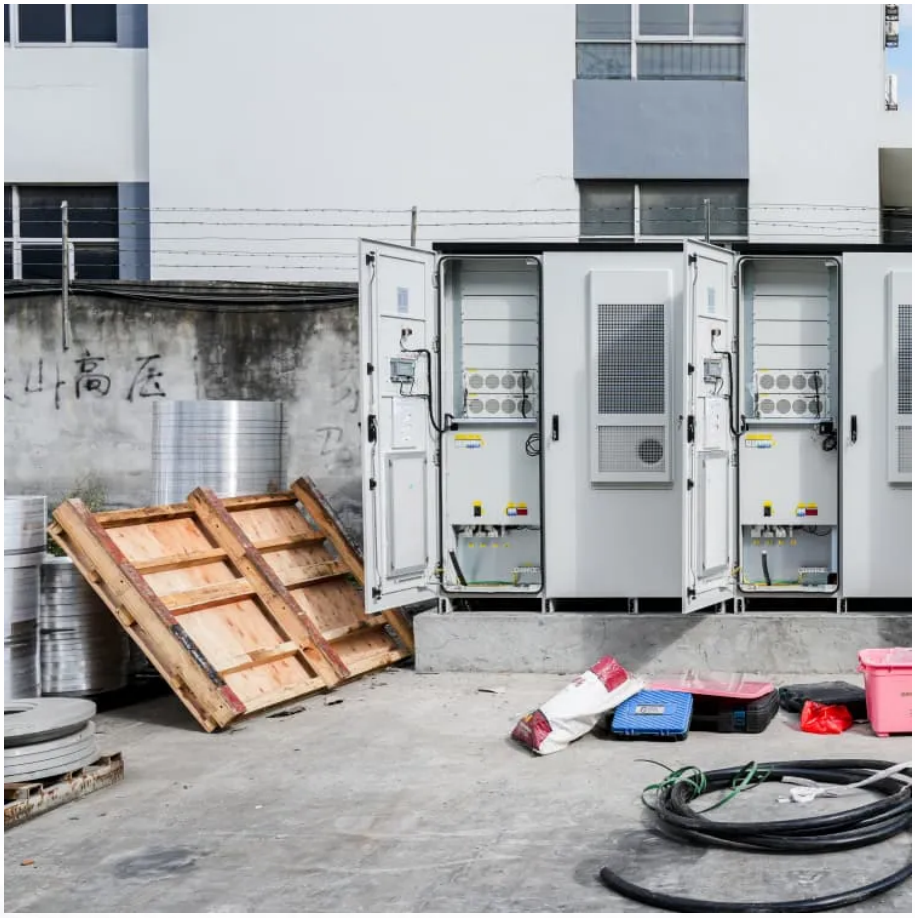
Offshore wind and solar complementary solar system



Overview

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Abstract With challenges such as land availability and regulatory constraints, offshore renewable energy sector is poised to play a pivotal role in the transition to a low-carbon future. Among offshore technologies, wind and solar photovoltaic (PV) have emerged as the most promising solutions.

The purpose of this study is to analyze the advantages of an offshore hybrid farm that combines wind turbines and PV solar panels on the western coast of the Iberian Peninsula, since it is expected a rapid growth in the number of offshore wind farms projects in this area in the upcoming decades.

Here, we demonstrate the potential of a globally interconnected solar-wind system to meet future electricity demands. We estimate that such a system could generate ~3.1 times the projected.

In this work we explore the potential of combining offshore wind and solar power through a case study in Asturias (Spain)—a region where floating solutions are the only option for marine renewables due to the lack of shallow water areas, which renders bottom-fixed wind turbines inviable.

Wind turbines and solar panels are the two main components of a wind-solar hybrid system. When the wind blows, wind turbines convert kinetic energy from the wind into electrical energy, while when the sun shines, solar panels generate electricity from sunlight.

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