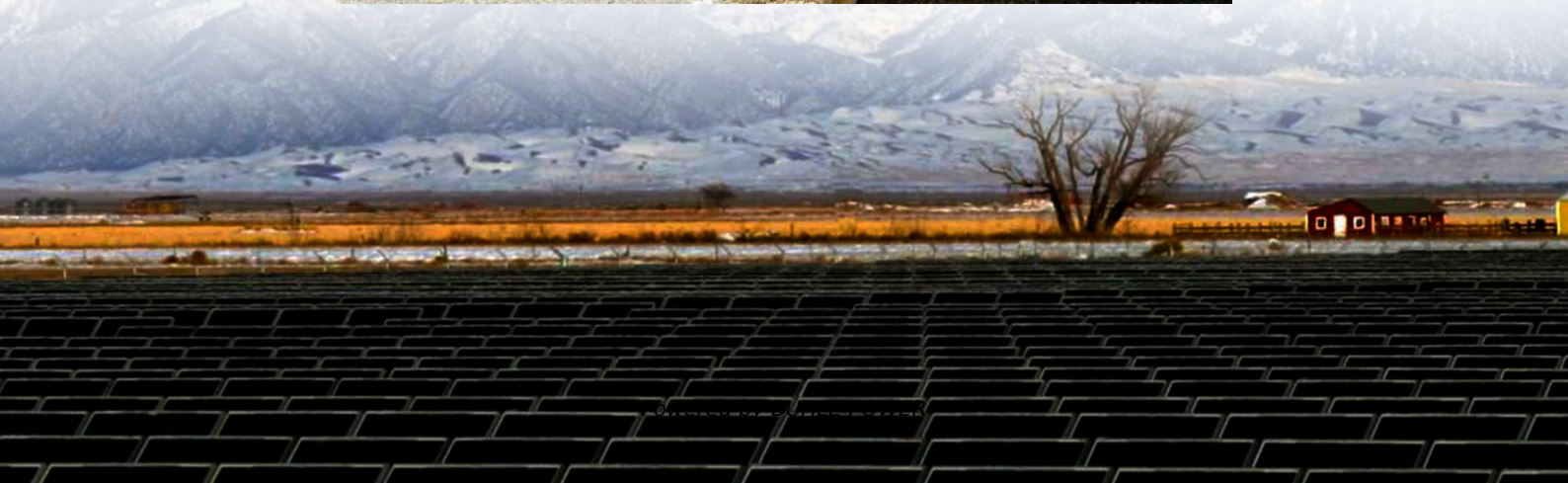


# **Customization of wind-solar hybrid power generation system in Croatia**





## Overview

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Even though the Republic of Croatia is on track of achieving goals set in the Europe 2020 strategy, to achieve the goals set in the 2030 European framework for climate and energy policies will require more.

What is a hybrid solar wind energy system?

The rising demand for renewable energy has recently spurred notable advancements in hybrid energy systems that utilize solar and wind power. The Hybrid Solar Wind Energy System (HSWES) integrates wind turbines with solar energy systems. This research project aims to develop effective modeling and control techniques for a grid-connected HSWES.

What is a hybrid MPPT for wind & solar?

The hybrid MPPT for wind and the independent MPPT for solar cooperated to maximize power extraction from both sources. Despite variations in wind speed and sun irradiation, the DC link voltage remained constant, guaranteeing a reliable grid connection and power delivery.

How is a hybrid solar system optimized?

The combination is used with a focus on optimization to evaluate how the hybrid system performs while applying optimization techniques to control strategies. The solar system was optimized using both the conventional P & O method and the metaheuristic PSO technique.

Can advanced control techniques improve wind and solar energy systems?

The simulation results validated the theoretical models and control strategies proposed in this thesis. The findings confirmed that the integration of wind and solar energy sources using advanced control techniques could lead to a more reliable and efficient renewable energy system.



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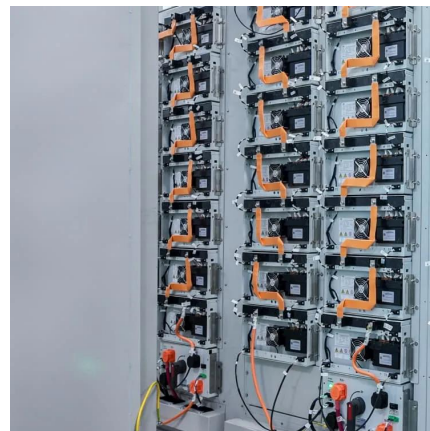
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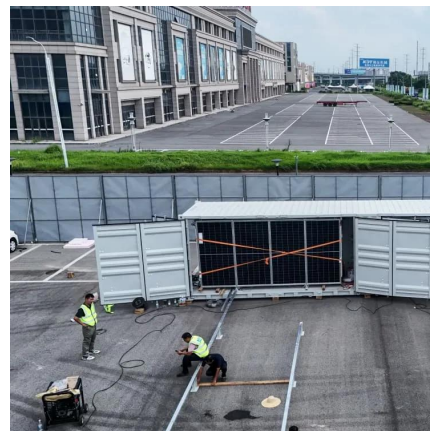


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