

40 000 wind power with solar container battery





Overview

Can a stand-alone solar PV-wind hydrogen system save energy?

Xu et al. presented a multi-optimization for stand-alone solar PV-wind hydrogen systems to simultaneously minimize the cost of energy, the loss of power supply possibility, or the fraction of power consumption not met by the generation, and the power abandonment rate, or the fraction of power generation curtailed.

How much does wind power cost in 2040?

The LCOH is reduced from 2.34 €/kg in the year 2020 to around 1.72 €/kg in 2040, achieving less than 2 €/kg before 2030. In all the simulated cases, the wind power production accounts for most of the total investment costs.

What is a nominal peak power capacity & energy storage capacity?

The nominal peak power capacities of solar PV and wind installations and the energy storage capacity of the BESS are defined as a function of nominal AWE power, which is fixed to 100 MW. This procedure enables scaling the plant up or down by simply changing the AWE nominal power and reducing the number of variables.

Can solar PV and wind power data be extrapolated?

The solar PV and wind power data used in the study was extrapolated to cover the 30 years simulation of the plant. This represents a limitation since the optimization does not include the combination of the random distribution of solar radiation and wind for the extrapolated years.



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