Ultra-short wave communication base station wind and solar complementarity

Which cluster of wind power stations exhibit the weakest complementarity with radiation?
Analysis of the matrix reveals that the 4th,5th,7th,and 8th clustersof wind power stations exhibit the weakest complementarity with the radiation of photovoltaic stations. In contrast,the 5th,7th,8th,and 10th clusters of photovoltaic stations similarly demonstrate poor complementarity with the wind speed of wind power stations.

How to measure complementarity between wind speed and radiation?
The Kendall CC,Spearman CC,and fluctuation coefficientare combined to construct a comprehensive measure of the complementarity between wind speed and radiation,which provides a reliable tool for quantitatively evaluating the complementary characteristics of wind and solar energy. 2. A copula-based wind-solar complementarity coefficient R

What is the complementarity index between wind and solar power?
After obtaining the total scores of the synchronous,reverse,and discrepancy fluctuation states,the complementarity index (CI) between wind and solar power is defined as:(30)CI=CI?S+CI?R+kCI?D=TS?SN-1+TS?RN-1+kTS?DN-1kis the coefficient of discrepancy fluctuation degree. CI?Sis the CIcomponent determined by synchronous fluctuation.

Can a complementarity metric be used to optimize a hybrid wind-solar power system?
Compared with correlation coefficients,the proposed complementarity metric can be usedto optimize the installed capacity ratio of wind and solar power and assist in selecting the specific components of a hybrid wind-solar power system,further adjusting the complementarity degree between wind and solar power.

What is the complementarity effect after combining wind and solar power?
The actual complementarity effect after combining wind and solar power is assessed by the reductions in standard deviation and fluctuation rate in power generation,which are defined as:(33)?Std=Stdwind+StdPV/2-Std?Stdwind+StdPV/2×100%(34)?PR=PRwind+PRPV/2-PR?PRwind+PRPV/2×100%

Does complementarity of wind and solar energy affect system reliability?
The complementarity between wind and solar energy is significant on the monthly time scale. Spain W, S CCA hourly, monthly, yearly Wind and concentrating solar power plants can be used as base energy in the study region. Poland W, S PC 15 min Impacts of complementarity of solar and wind resources on system reliability are investigated.

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