

Can hydropower smooth PV output to the electricity yield curve?

Unlike other studies in this paper we considered the possibility of using hydropower to smooth PV output to the electricity yield curve observed under clear-sky conditions - in former works hydropower was only used to balance the variability of solar power, but in the context of observed load.

Can solar power reduce the need for hydropower in Brazil?

Palfi and Zambon, 2013, De Jong et al., 2013 assessed the complementarity of solar, wind and hydropower in Brazil, showing that solar energy can be used to reduce the need for hydropower generation in the hot months, when water is needed for irrigation purposes.

When is wind and solar energy available?

Generally, wind and solar energy appear high from November to May (dry season) and low from June to October (rainy season). This distinctive feature of wind and solar resources in the region is naturally complementary to hydropower characteristics.

Can solar-hydro generators be combined in a single hybrid energy source?

Considering the above, it can be said that solar and water resources exhibit significant potential for being coupled in a single hybrid energy source. This possibility of solar-hydro generators has already been presented in several papers.

Should hydropower be used to smooth PVS variable generation?

Therefore, we claim that if the hydropower were to be used to smooth PVs variable generation then at least two or more turbines should be installed to maximize the efficiency of water usage. The effectiveness of water usage will be achieved by ensuring that the turbine operates in the high efficiency zone.

Can hydropower integrate variable photovoltaics?

The main factor supporting claims of hydropower's potential to integrate variable photovoltaics is their temporal complementarity and especially the flexibility of hydropower due to its storage potential, which has been presented and analyzed in several studies.

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