

Off-grid solar containerized wind-resistant cooperation for farms





Overview

Should a wind farm be a sole power supply for off-grid alkaline systems?

A sensitivity analysis performed over different installation years and discount rates reveals that for the off-grid alkaline system, the implementation of a wind farm as the sole power supply is the most economical solution until the installation years 2035–2040.

Can LCoH be minimized in off-grid solar PV–wind systems?

Studies addressing the optimization of the control and component capacities to minimize the LCOH in off-grid solar PV–wind systems with megawatt-scale electrolyzers are limited in number. Off-grid systems can be beneficial in remote or isolated locations where connection to the grid would be difficult or expensive to build.

Can off-grid systems reduce costs associated with green hydrogen production?

Off-grid systems can be beneficial in remote or isolated locations where connection to the grid would be difficult or expensive to build. It could potentially reduce costs associated with the green hydrogen production but this topic is out of the scope of this study.

How is energy curtailed in the Off-Grid plant?

The average annual energy curtailed in the off-grid plant is reduced from 18% in the year 2020 to 16% in the year 2035. In year 2040, with the addition of solar PV and a large capacity of BESS to the system, the curtailment is further reduced to 8%.



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