PDEOZE PowerContainer

Communication base station wind power architecture

Overview

In this study, we proposed a framework for a cyber physical wind energy system (CPWES), which consists of four layers: a WF power system layer, data acquisition and monitoring layer, communication network layer, and application layer.What is the role of communication infrastructure in modern power systems?

This research underscores the crucial role of efficient communication infrastructure in modern power systems and presents a comprehensive approach that can be used to plan and operate both communication and power systems, ultimately leading to more resilient, efficient, and reliable networks.

Why are power systems and communication systems increasingly coupled?

Therefore, power systems and communication systems are increasingly coupled. A power system supplies energy, and a communication system meets the demand for information exchange. A BS is the main intermediary between a communication network and a power network.

Can communication and power coordination planning improve communication quality of service?

Our study introduces a communications and power coordination planning (CPCP) model that encompasses both distributed energy resources and base stations to improve communication quality of service.

How does a base station work?

As shown in Figure S3 each user accesses a base station, and the BS then allocates a channel to each new user when there is remaining channel capacity. If all of the channel capacity of a BS is occupied, a user cannot access this BS and must instead access another BS that is farther away.

What is the access mechanism between EMCs and BSS?

To describe the access mechanism between the EMCs and the BSs, we introduce an $N_{bs} \times N_{mg}$ connection matrix A, where N_{mg} is the EMCs number and N_{bs} is the number of power towers which is also the number of candidate locations for base stations. It is not necessary for all power towers to be selected as communication power sharing towers.

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