

What is the new communication standard for wind power plant monitoring & control?

The International Electrotechnical Commission (IEC) proposed a new communications standard for the wind power industry aiming at providing a common communication approach for wind power plant (WPP) monitoring and control.

Can wind energy be used to power mobile phone base stations?

Worldwide thousands of base stations provide relaying mobile phone signals. Every off-grid base station has a diesel generator up to 4 kW to provide electricity for the electronic equipment involved. The presentation will give attention to the requirements on using wind energy as an energy source for powering mobile phone base stations.

How to reduce ETE delay in wind power systems?

In this respect, the analysis of the network bandwidth is very important to minimize the amount of ETE delay. The implementation of a communication network architecture based on wireless or hybrid wired/wireless connection can lead to the lowest possible ETE delay in the future wind power systems.

Why do off-grid telecommunication base stations need generators?

As the incessant demand for wireless communication grows, off-grid telecommunication base station sites continue to be introduced around the globe. In rural or remote areas, where power from the grid is unavailable or unreliable, these cell sites require generator sets to provide power security as prime power or backup standby power.

Why do wind turbines need ICT systems?

The ICT systems have to enable effective Operation and Maintenance (O&M) and seamless control of individual wind turbines and the WPP as a whole. Each plant or wind farm may be composed of many wind turbine units manufactured by different vendors.

What is the basic structure of a WPP network topology?

The basic structure of a WPP network topology implemented based on the IEC 61850 and IEC 61400-25 standards comprises three levels, including the station, bay, and process levels. The connection of the two control devices, i.e. the local SCADA system and remote control centre, is implemented at the station level.

Abstract--Ensuring reliable and low-latency communication in offshore wind farms is critical for efficient monitoring and control, yet remains challenging due to the harsh environment and ...

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, ...

Therefore, to ensure stable and reliable power supply operation during communication base stations, new energy sources need to be developed and applied. With the development of ...

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2.2 Equivalent standards For other types of floating offshore wind turbine installations with design alternatives not explicitly covered by these rules, alternative solutions may be accepted ...

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