

# How does wind power work at communication base stations

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 windenergy as an energy source for powering mobile phone base stations.

Which telecommunication services are more sensitive to wind turbines?

The telecommunication services included in this review are those that have demonstrated to be more sensitive to nearby wind turbines: weather, air traffic control and marine radars, radio navigation systems, terrestrial television and fixed radio links.

Why is wind power a problem in telecommunications?

Wind power is one of the fastest-growing technologies for renewable energy generation. Unfortunately, in the recent years some cases of degradation on certain telecommunication systems have arisen due to the presence of wind farms, and expensive and technically complex corrective measurements have been needed.

Why does a wind turbine block a radar beam?

The blocking of the beam occurs when the radar is pointing in direction of the wind turbine and there is direct line of sight between them. If the physical area of a wind turbine blocks part of the radar beam, this obstruction, even if partial, can lead to errors in the precipitation monitoring.

How are wind turbine echoes characterized in weather radars?

For example, in weather radars, although echoes from isolated storms are mixed with the wind turbine clutter echoes, the wind turbine signals are characterized by random radial velocity and large spectrum width, as it can be observed in Fig. 10.

Does a wind turbine affect TV reception?

As commented in Section 2, the effect of a wind turbine on an EM signal is different depending on the scattering region where the receiver is located, and therefore, the potential degradation on the television reception should also be analyzed separately.

Such base stations are powered by small wind turbines (SWT) having nominal power in the range of 1.5-7.5 kW. In the context of the OPERA-Net2 European project, the study aims to quantify ...

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