Wind power distribution of 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.

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.

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.

What is a forward scattering region of a wind turbine?
In the forward scattering region,the transmitter,the wind turbines and the receiver are almost lined-up. In this case,the forward scattering region of the wind turbines is characterized by a shadow zone of reduced intensity behind the turbine,due to the sum of the direct field and the scattered field.

Are radiolinks obstructed by wind turbines?
It is clearly observed that the radiolinks depicted in green are not obstructedby the wind turbines,while the turbines intercept the second Fresnel zone of the radiolink depicted in red. Fig. 13. Example of the exclusion volumes that should be respected to avoid diffraction effects on radiolinks .

The power-communication coupling is reflected in the fact that the mobile base station depends on the power supply on the power side, and the control of distribution device, such as switches ...

Web: https://edukacja-aktywna.pl