FTMRS SOLAR

Data management system for wind power generation

Overview

Where did wind speed and power generation data come from?

Wind speed and power generation data were derived from historical SCADA data for a wind turbine at Kelmarsh Wind Farm near Haselbach, Northamptonshire comprising 6 wind turbines. Table 1 provides wind turbine data details.

What data is used to predict wind turbine power?

For example, Sobolewski et al. (2023) used historical turbine data collected by SCADA system, meteorological reanalysis data, and NWP data to predict power of wind turbine, but the spatial resolution of NWP data was 0.25°, which affected the prediction accuracy.

Can DTS be used in the wind energy sector?

The use of DTs in the wind energy sector has seen increasing popularity. Numerous frameworks have been proposed, particularly for operations and maintenance purposes, for both onshore and offshore wind turbines [33, 34, 35]. However, there has been limited research regarding power generation-focused DTs. Fahim et al. proposed.

What are the WPP methods for wind turbines and wind farms?

The WPP results of wind turbines and wind farms are directly used, and the power prediction results of each wind farm are added to obtain the power prediction result of the regional. The WPP methods for wind turbines and wind farms can be directly used in the accumulation method.

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