Microgrid power generation prediction analysis

Overview

In this research, the study delves into predictive analysis of volatile load demand and the detection of anomalies in power generation within microgrid infrastructures, aiming to enhance the operational efficiency and reliability of these systems. Accurate forecasting of renewable generation is crucial for mitigating these challenges. This work proposes a one-dimensional Convolutional Neural Network (1-D CNN) based approach to forecast photovoltaic (PV) generation and wind energy, using data from the University of California, San Diego. In order to address the impact of the uncertainty and intermittency of a photovoltaic power generation system on the smooth operation of the power system, a microgrid scheduling model incorporating photovoltaic power generation forecast is proposed in this paper. This approach is aimed at effectively extracting temporal data from energy datasets to improve the precision of microgrid behavior forecasts. Additionally, an attention layer is.

Microgrid power generation prediction analysis

Artificial intelligence enabled microgrid power generation prediction

This article proposed machine learning-based short-term PV power generation forecasting techniques by using XGBoost, SARIMA, and long short-term memory network (LSTM) algorithms.

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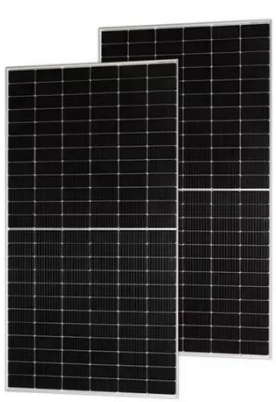

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