WIND ENERGY PREDICTION USING MACHINE LEARNING ALGORITHMS

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The viability of large renewable energy projects depends on accurate projections about the future of wind power. It is necessary to take into account variations in weather patterns throughout time in order to make accurate predictions of wind electricity generation also it is necessary for providing early warn- ings and taking action to mitigate risk. Wind energy prediction involves predicting the future wind conditions, including wind speed, direction, and wind power. One of the key renewable energy sources that give contemporary systems clean, sustainable power is wind turbines. Accurate prediction enables efficient integration into the energy grid, optimal energy production, and reliable grid operations. In this project, the wind data at different locations Kerala are used to develop prediction models for wind energy . Reducing the challenges associated with supply and demand balance in the smart grid requires precise wind power generation forecasting. Future energy modeling not only helps with the integration of renewable energy sources, but also demonstrates the market potential for balancing resources. A novel machine learning-based method is presented here that maps the long term meteorological data to renewable power generation and electric load in and it gives a proper idea about the utilization of resources. Additionally, these algorithms could be effectively used before the wind plants are developed in an unidentified geographic area by using a model of a base site.

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