Paper Title	Method	Merits	Demerits	Paper Link
Predicting the energy output of wind turbine based on weather condition	Predicted the output power of the wind turbines using the random forest regressor algorithm. The wind direction, wind speed and outdoor temperature are used as input parameters to predict output power	Low over-fitting tendency Simple and fast to train Low prediction error	Problem of missing data is not solved Prediction model does not predict other parameters like fault in wind turbine	https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9208852&tag=1
Short term wind speed forecasting for wind turbine applications using linear prediction method	Utilizes the 'linear prediction' method in conjunction with 'filtering' of the wind speed waveform. The filtering eliminates the undesired parts of the frequency spectrum (i.e. smoothing) of the measured wind speed which is less effective in an application	Fits a linear differential equation to the data waveform Performs an accurate modelling high correlation between the output of the method and the real wind speed data	Increasing the model order can cause instability of obtained model Filtering out the less effective frequency components from the wind speed spectrum is not done	https://reader.elsevier.com/reader/sd/pii/S0960148107000237?token=E285B3E00332AD147BDFFE8E0BAD30E5B0E8D860E1F2BB81DA2870A89B488B9E7F6A7164501C2894664C042B93CE763D&originRegion=eu-west-1&originCreation=20220910183934
Wind power forecasting of an offshore wind turbine based on high frequency SCADA data and deep learning neural network	A deep learning neural network was constructed to predict wind power based on a very high-frequency SCADA database. Input features were engineered based on the physical process of offshore wind turbines, while their linear and non-linear correlations were further investigated	Investigated non-linear correlations Proposed approach can reduce the computational cost Retains high accuracy	Learning rate is high Requires very large amount of data in order to perform better	https://reader.elsevier.com/reader/sd/pii/S0360544220308008?token=2C188EDEC70600F84640AAFD559E3E6B4A953B312803DDAC762A953E86506642189F88C4FB1FC4E10ACABBB34C870F2C&originRegion=eu-west-1&originCreation=20220910184930
Wind turbine power output prediction model design based on artificial neural networks and climatic spatiotemporal data	Building a prediction model using the Artificial Neural Networks, activation function, analyze model performance for different sites, comparison on different climatic conditions	Model performance is compared across various sited to improve accuracy It can handle large amount of data sets	Doesn't take additional climatic variables like atmospheric pressure Data is not unified	https://ieeexplore.ieee.org/document/8352329?denied=

Wind Turbine Power Output Estimation with Probabilistic Power Curves	Deterministic and probabilistic power curve, uses field data, Normal distribution and Weibull distribution are used to represent the probability density function of power output at various wind speed, Monte Carlo simulation is used to generate random predicting power output	Performs better than other deterministic models and probabilistic models Improves wind turbine power output estimation accuracy	Does not consider every wind turbine in the wind farm Need to extend model to calculate total wind power output	https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9209346
A Review of Wind Power Forecasting Models	Wind power forecasting models for wind prediction, physical approaches, statistical approaches, adaptive fuzzy neural networks, on-line adaptation capabilities for optimal performance	presents a detailed review on existing tools used in wind speed wind power prediction over time-scales	Difficult to evaluate the performance of various models No forecasting model of can perfect any condition	https://www.sciencedirect.com/science/article/pii/S1876610211019291
Wind Power Forecasts Using Gaussian Processes and Numerical Weather Prediction	Combination of numeric and probabilistic models: a Gaussian process (GP) combined with a numerical weather prediction (NWP) model, validated with three real-world datasets for model training and testing	Three real-world datasets were used for model training and testing The proposed model has improvement of accuracy for the regular large datasets	Model can not handle sparse dataset	https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6617679
Wind turbine power output prediction using a new hybrid neuro-evolutionary method	K means clustering, SCADA time series decomposed by Hybrid Variational Mode Decomposition, which consists of VMD, GNM and ARLS heurisics, SaDE with sine cosine optimization hyper parameter tuning, LSTM	Model provides accurate forecasting Lowers computational runtime	Different results were achieved over iteration	https://www.sciencedirect.com/science/article/abs/pii/S0360544221008665