

## **ABSTRACT**

When wind turbine blades are icing, the output power of a wind turbine tends to reduce, thus informing the selection of two basic variables of wind speed and power. Then other features, such as the degree of power deviation from the power curve fitted by normal sample data, are extracted to build the model based on the random forest classifier with the confusion matrix for result assessment. The model indicates that it has high accuracy and good generalization ability verified with the data from the China Industrial Big Data Innovation Competition. This study looks at ice detection on wind turbine blades using supervisory control and data acquisition (SCADA) data and thereafter a model based on the random forest classifier is proposed. Compared with other classification models, the model based on the random forest classifier is more accurate and more efficient in terms of computing capabilities, making it more suitable for the practical application on ice detection.