Research of offshore wind turbine status monitoring based on neural network algorithm

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Abstract: Nowadays, research on status monitoring of offshore wind turbine is a hot topic, and most of it focuses on the blade and tower, rather than the whole structure including foundation. Modal analysis is the most common method, which is invalid in some cases for poor precision, and not-applied in any projection. In this paper, the static analysis and modal analysis will be used in the study of structure state monitoring, based on neural network algorithm. This paper presents the installation principle of sensors, and extracts the characteristics of various environment loads which have remarkable effect on the whole structural. Compared with the finite element calculation, the results show that error between neural network and finite element calculation is around 5%, and can provide reference for the on-line monitoring of the structure state of offshore wind turbine.

Key words: Offshore wind turbine; the structure state; neural network; installation principle of sensor