A review on the self energize structural health monitoring (SHM) in vertical axis wind turbine (VAWT) system

ABSTRACT

Wind energy is one of the renewable energy sources which the trend is positive and increasing year by year. This technology applied widely in several regions in the world and already has maturity in technology, good infrastructure and relative cost competitiveness. The application of structural health monitoring (SHM) is crucial especially to evaluate the performance of wind turbine in real time assessment. Furthermore, the smart material in SHM can be utilized as micro energy harvester as well. However, the application of SHM and micro energy harvester for wind turbine is still premature especially in SHM embedded or bonded strategy. Several issues are highlighted such as SHM material selection, wind turbine selection and the issue in micro energy harvester. The issues are discussed and compared with the recent finding in this review. Several recommendations are suggested for future study especially on the application of micro energy harverster.

Keyword: Micro energy harvester; Piezoelectric; Structural health monitoring (SHM); Vertical axis wind turbine