World Academy of Science, Engineering and Technology
International Journal of Structural and Construction Engineering
Vol:9, No:02, 2015

Development of a Numerical Model to Predict Wear in Grouted Connections for Offshore Wind Turbine Generators

Authors : Paul Dallyn, Ashraf El-Hamalawi, Alessandro Palmeri, Bob Knight

Abstract : In order to better understand the long term implications of the grout wear failure mode in large-diameter plain-sided grouted connections, a numerical model has been developed and calibrated that can take advantage of existing operational plant data to predict the wear accumulation for the actual load conditions experienced over a given period, thus limiting the need for expensive monitoring systems. This model has been derived and calibrated based on site structural condition monitoring (SCM) data and supervisory control and data acquisition systems (SCADA) data for two operational wind turbine generator substructures afflicted with this challenge, along with experimentally derived wear rates.

Keywords : grouted connection, numerical model, offshore structure, wear, wind energy
Conference Title : ICMSE 2015 : International Conference on Materials and Structural Engineering
Conference Location : Kuala Lumpur, Malaysia
Conference Dates : February 12-13, 2015