

ABSTRACT

With the advancement and emergence in the field of research and technology for energy generation, the research in order to create more efficient wind turbine are under way. The use of low cost and environmentally friendly wind turbine are thus gaining numerous attentions. Among various different types of wind turbine, bladeless vortex wind turbine has gained a lot of attention in the last few decades due to their excellent and advanced application in various different fields as well as their low cost and environmental friendliness. In this work, bladeless vortex wind turbine is simulated in ANSYS to analyze the effect of wind on the deflection of the turbine as well as the stress and strain created within the turbine. The deflection is maximum at the moving edge of the vertical bladeless vortex wind turbine due to high wind speed, however the strain and stress is maximum at the fixed edge which shows that the deflection of the bladeless vortex wind turbine to and fro will include stress and strain at the fixed edge of the turbine resulting in converting the energy to electrical energy. This work can help in improving the overall power conversion efficiency of the wind turbine by changing the structural parameters of the turbine.