Optimization of Solar Chimney Power Production

Authors : Olusola Bamisile, Oluwaseun Ayodele, Mustafa Dagbasi

Abstract : The main objective of this research is to optimize the power produced by a solar chimney wind turbine. The cut out speed and the maximum possible production are considered while performing the optimization. Solar chimney is one of the solar technologies that can be used in rural areas at cheap cost. With over 50% of rural areas still yet to have access to electricity. The OptimTool in MATLAB is used to maximize power produced by the turbine subject to certain constraints. The results show that an optimized turbine produces about ten times the power of the normal turbine which is 111 W/h. The rest of the research discuss in detail solar chimney power plant and the optimization simulation used in this study.