Abstract

Presently the world is running through an energy crisis and the utilization of the renewable resources is still under development. The present challenge in this era is to use the waste energy that can generate ample amount of electricity, like in industries for maintaining draught of the flue gases, certain amount of energy is just thrown out into the atmosphere by the chimneys to keep the system running. Similarly, the hot gases thrown away by the aircraft also goes waste, so in this way there are lot of sources of waste energy, that if utilized properly would eliminate the need of fossil fuels like coal. In addition, if devices utilizing the energy of these systems were integrated in the micro-grid architecture, the efficiency as well as reliability of the power system would increase. This paper develops a method to utilize the waste energy from aircrafts in the runway to generate electric energy. The work also estimates the optimum number of units, power that is to be used to achieve maximum profit, which is analyzed using Genetic Algorithm, an optimum method of placing the units is developed. A control system representation of the entire system is developed, and they are simulated against various types of expected input response. Apart from the control system block diagram mathematical model of
jet blast velocity is developed. The formula for efficiency of the bladeless wind turbine is also developed.

References


Index Terms

Computer Science
Applied Sciences

Keywords
Jet blast, Bladeless wind energy generator, piezoelectric material, Genetic Algorithm