World Academy of Science, Engineering and Technology
International Journal of Mechanical and Industrial Engineering
Vol:9, No:06, 2015

A Paradigm Shift in Energy Policy and Use: Exergy and Hybrid Renewable Energy Technologies

Authors : Adavbiele Airewe Stephen

Abstract : Sustainable energy use is exploiting energy resources within acceptable levels of global resource depletion without destroying the ecological balance of an area. In the context of sustainability, the rush to quell the energy crisis of the fossil fuels of the 1970's by embarking on nuclear energy technology has now been seen as a disaster. In the circumstance, action (policy) suggested in this study to avoid future occurrence is exergy maximization/entropy generation minimization and the use is renewable energy technologies that are hybrid based. Thirty-two (32) selected hybrid renewable energy technologies were assessed with respect to their energetic efficiencies and entropy generation. The results indicated that determining which of the hybrid technologies is the most efficient process and sustainable is a matter of defining efficiency and knowing which of them possesses the minimum entropy generation.

Keywords : entropy, exergy, hybrid renewable energy technologies, sustainability
Conference Title : ICPME 2015 : International Conference on Power and Mechanical Engineering
Conference Location : San Francisco, United States
Conference Dates : June 07-08, 2015