Optimization of Conventional Method of Estimating Power Generation from Compus Solid Waste Using an Intelligent Technique

Authors : Danladi Ali

Abstract : This work proposed to adopt and optimize the conventional method of estimating power generated from campus solid waste (CSW) using an intelligent technique. The chemical content of the CSW was analyzed, the population responsible for the generation of the CSW, the amount of CSW generated, power to grid predicted and forecasted were obtained, and sources of supply of electricity for Adamawa State University (ADSU) were compared with the PGPs estimated from the CSW. The percentage content of the chemical elements was obtained as 56.90% carbon, 8.40% hydrogen, 27.70% oxygen, 6.00% nitrogen and 1.00% sulfur. The amount of the CSW generated and power to grid predicted and forecasted for 10 years was determined as 287.74 tons/day, 13.12MW and 12.90 MW, respectively. A model for estimating power potential from CSW for ADSU was developed, and also the work revealed that the PGPs estimated from the CSW are adequate to power the University for 24 hours on a daily basis.