

Production of Thermoelectric Power from the Solid Wastes: the case of Lahore School of Economics

Mohammad Rafiq Khan, Sana Sheikh

Abstract

This paper describes the feasibility of production of thermoelectric power from biomass of solid waste of Lahore School of Economics (LSE). The primary data concerning quantity and nature of solid waste were collected from LSE. Data concerning the production of thermoelectric power from solid waste such as bagasse were collected by visiting Pattoki Sugar Mills. The data were processed; the project was cost-designed and appraised by applying standard techniques of project appraisal to determine its B/C ratio (BCR), NPV and payback period (PBP). The appraisal showed that LSE produces approximately 200 metric tons solid waste per annum from which 280,000 KW of electricity could be produced which covered about one-fourth of its current consumption. The BCR at this scale of production was 0.15 which was less than 1, NPV was -\$ 1,016,403 which was below zero and PBP was infinite as the net cash flow per annum was negative. These results clearly indicated that the projection was not feasible. The evaluation was revised to pull the project towards feasibility if solid waste was increased to 600 and 1000 metric ton per annum including and excluding price of land from expenditure stream (six alternatives). Some of the projects at these scales of processing turned out to be feasible as the BCR increased to 1.04 and 1.73 respectively, if price of land was excluded. The impact of inflation on all alternatives was studied at constant inflation rate of 8%. The inflation impact resolved in favor entrepreneur as above alternatives turned out to be more profitable (BCR=1.24 and 2.09 and NPV=\$ 171,718 and \$ 757,152) respectively.

Full Text: Subscribers Only