

Utilization of Municipal Solid Waste in Thermal Power Production: A Techno-Economic Study of Kasur City, Punjab, Pakistan

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Abstract : This techno-economic study reports the feasibility of generating thermoelectric power from municipal solid waste (MSW) of Kasur City by incineration process. The data was gathered from different establishments of Kasur, through appropriate permission from their heads, and processed to design different alternative projects for installation of a thermal power plant in the city of Kasur. A technique of discounted cash flow was used to evaluate alternative projects so that their Benefit to Cost Ratio, Net Present Value, Internal Rate of Return and Payback Period can be determined. The study revealed that Kasur City currently consumes 18MWh electricity and generates 179 tons/day MSW. The generated waste has the ability to produce 2.1MWh electricity at the cost of USD 0.0581/unit with an expenditure of USD 3,907,692 as initial fixed investment of forming about 1/7th of consumption of Kasur. The cost from this source, when compared to current rate of electricity in Pakistan (USD 0.1346), is roughly half.

Keywords : Kasur City, resource recovery, thermoelectric power, waste management

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