

Optimal Design and Economic Effects of Renewable Energy System for Effective Utilization of Animal Manure and Wood Biomass in Rural Areas in Japan

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The main objective of this paper is to design the renewable energy system and to analyze the economic effects for installing the energy system in rural areas in Japan, using an optimization model and input-output technique. The cost of the disposal of animal manure and the collection of woody biomass are also considered in the study. The energy system consists of wind, animal manure, wood biomass, and solar as renewable energy resources, and conventional energy resources (see figure). Besides the configuration and operation of the system taking into account hour-by-hour energy availability, the model will show the energy system configuration and its cost in the long-term for future prospects to promote the effective utilization of renewable energy resources.

Key words:

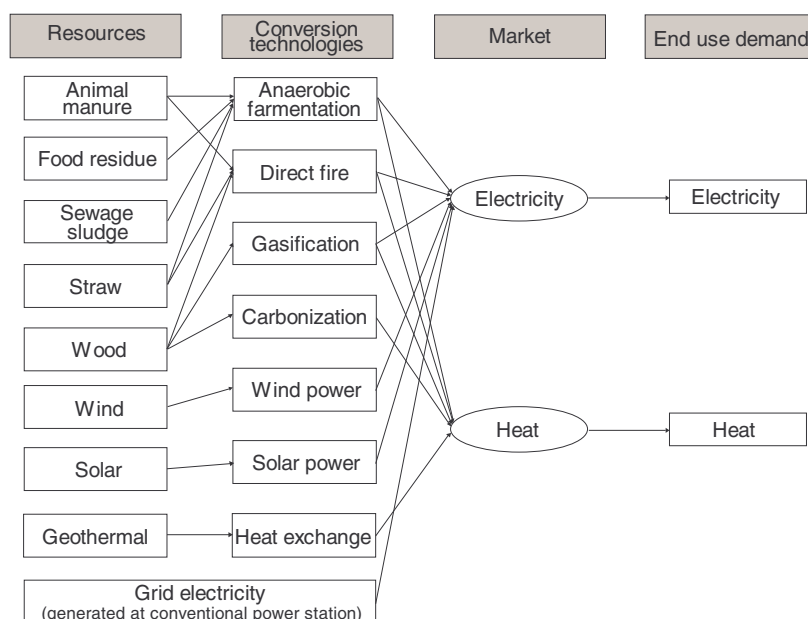


Figure: Energy flow of renewable energy system in rural areas