

Financial Analysis of Feasibility for a Heat Utilization System Using Rice Straw Pellets: Heating Energy Demand and the Collection and Storage Method in Nanporo, Japan

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Abstract : Rice straw pellets are a promising fuel as a renewable energy source. Financial analysis is needed to make a utilization system using rice straw pellets financially feasible, considering all regional conditions including stakeholders related to the collection and storage, production, transportation and heat utilization. We conducted the financial analysis of feasibility for a heat utilization system using rice straw pellets which has been developed for the first time in Nanporo, Hokkaido, Japan. Especially, we attempted to clarify the effect of factors required for the system to be financial feasibility, such as the heating energy demand and collection and storage method of rice straw. The financial feasibility was found to improve when increasing the heating energy demand and collecting wheat straw in August separately from collection of rice straw in November because the costs of storing rice straw and producing pellets were reduced. However, the system remained financially unfeasible. This study proposed a contractor program funded by a subsidy from Nanporo local government where a contracted company, instead of farmers, collects and transports rice straw in order to ensure the financial feasibility of the system, contributing to job creation in the region.

Keywords : rice straw, pellets, heating energy demand, collection, storage

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