

Daungjai Jeenanurugk 2014: The Feasibility Study of Investment on Biomass Power Plant from Napier Pakchong 1 Grass Amphoe Muak Lek Changwat Saraburi. Master of Economics (Business Economics), Major Field: Business Economics, Faculty of Economics at Sriracha. Thesis Advisor: Mr. Bhisanuwat Thaweewat, D.A. 123 pages.

The objectives of this study were to study (1) the general conditions of Napier Pakchong 1 grass as fuel (2) the technical aspects of electricity generation from Napier Pakchong 1 Grass (3) the financial feasibility and (4) the appropriate Adder of the purchase price for the electricity generated from the project. The primary data was collected by the participant observation method and from the in-depth interviews with biomass power plant specialists, Napier grass specialist and farmers, and used secondary data collected from documents, books and websites of government agencies and private sectors. Both types of data were used in descriptive and quantitative analysis. The analytical tools employed were weighted average cost of capital (WACC), net present value (NPV), internal rate of return (IRR), modified internal rate of return (MIRR), profitability Index (PI) and switching value test (SVT).

The study revealed that the space of approximately 500 rais in this area were used to cultivate Napier Pakchong 1 grass and could be harvested for 6-7 years without replanting. The output was about 60 to 80 tons per rai per year from 3 harvest times per year and was enough to be used as fuel for biomass power plant which required input of 35,837 tons per year. The power plant required area of 12 rais in Amphoe Muak lek and utilized thermochemical conversion technique of gasification by fixed-bed gasifier with downdraft type. The output capacity was 1 Megawatt. The financial feasibility based on project life of 26 years and WACC at 9.91 percent, showed that the project was infeasible since NPV was -51,853,492 Baht, IRR was 0.29 percent, MIRR was 6.61 percent and PI was 0.45. The result from SVT showed that if the project could increase 21.04 percent of revenue or reduce 25.47 percent operation cost or get 54.78 percent lower investment cost, these will make the project to be feasible. However, if the government would like to support this project, the Adder should be increased from 0.50 Baht to 2.03 Baht per kilowatt-hour.

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