

Pattraporn Wannaarpha 2010: A Financial and Economic Feasibility Study of Biomass Power Plant Using Giant Leucaena as Fuel. Master of Economics (Business Economics), Major Field: Business Economics, Department of Economics. Thesis Advisor: Associate Professor Chuchee Piputsitee, Ph.D. 107 pages.

Main objective of this study are 1) to study condition of Giant Leucaena and power generation from biomass by Gasification Technology. 2) to study the financial and economic feasibility of Biomass Power Plant Using Giant Leucaena as fuel. 3) to examine the switching value test of Project's cost and benefit. The project life is set for 20 years, during 2010 to 2030. The study was analyzed by using net present value (NPV), internal rate of return (IRR) and benefit-cost ratio (BCR) using a 7.74 percent discount rate.

The results from the financial study show that the project is acceptable for investment. Net present value (NPV) is 41.154 million baht, internal rate of return (IRR) is 17.49 percent and benefit-cost ratio (BCR) is 1.25. The result of the switching value test implying that the project still be in the high risk level. The results from the economic study show that the project is highly acceptable for investment. Net present value (NPV) is 124.318 million baht, internal rate of return (IRR) is 35.95 percent and benefit-cost ratio (BCR) is 2.00. And the switching value test also show that the project still be in the low risk level. Besides, the results from the economic study when include benefit from using oil as fuel substitute show that the projects is very acceptable for investment.

The study found that Biomass power plant with Gasification technology is the green power with clean technologies and has less environmental impact. But, it has the low profit for investment so that it is not interesting for private investors. Thus, the government should have supported the research and development in renewable energy. As well as, financial support to private investors for promoting power generation from renewable energy with clean technology and sustainable power.

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Thesis Advisor's signature