

## The Development Strategy of Sustainable Bioenergy Investment in Indonesia based Palm Biomass Feedstock

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### Abstract

Until 2015 Indonesia energy mix is still dominated by petroleum by 47 percent, followed by coal and natural gas respectively by 24 percent. Consumption of renewable energy (EBT) has accounted for 5 percent of the national energy mix, or 59 million barrels of oil equivalent per year, while consumption of petroleum reached 550 million barrels of oil equivalent per year. With the growth of energy consumption reached 8 percent per year which is not offset by the discovery of new reserves of fossil energy to encourage the emergence of National Energy Policy. In order to achieve sustainability and energy independence and to support sustainable development, the government aims to use renewable energy in the national energy mix by 17 percent by 2020 and 23 percent in 2025. One type of renewable energy potential in Indonesia is bioenergy. The purpose of this study was to analyze the priority development of the bioenergy industry in Indonesia-based palm biomass. The approach used in the study to combine field surveys, analysis of stakeholders through the FGD, and a desk study. Field surveys conducted in North Sumatra province, while for FGD held in Jakarta. The data were analyzed qualitatively and quantitatively using the SWOT method, AHP, and financial feasibility. The results of the analysis recommend 2<sup>nd</sup> generation bioethanol industry (G2) as a flagship bioenergy industry based palm biomass. The advantages of bioethanol G2 is supported by the mastery of bioethanol from biomass conversion technologies cane and fiber pulping technology. Besides, it is also taken into account through the flexibility of product absorption bioethanol compared to other bioenergy products. G2 investment bioethanol industry oil from oil palm empty fruit bunches (EFB) 5000-5500 capacity KL/year is planned at North Sumatra. To support the sustainable supply of raw materials needed EFB at least three palm oil mills capacity of 1000 TBS/day. Investment of IDR 622 billion is projected to have payback periods of 4.67 years, PI of 1.99, B/C ratio of 1.73 and an IRR of 13.18 percent and still be economically viable.

*Keywords: sustainable bioenergy; palm biomass; SWOT-AHP; bioethanol G2 investment.*