ABSTRACT

The potential of biomass in the form of rice husk in NTB are scattered around counties and cities include West Lombok, Central Lombok, East Lombok, Sumbawa, Dompu, Bima, Sumbawa West, Mataram, Lombok and Bima City North. Rice husks are by product of rice mills which can be used as one of the alternative feedstock for biomass power plants. Utilization of rice husks waste into electricity will greatly affect the welfare of the people in NTB.

This research aims to determine the sustainability of raw material supplies and transportation costs of rice husks waste to ensure a continuous supply of energy, configuring biomass power plant design system (biomass power plant) with rice husk as a fuel with proven and available technology, and analysing of financial feasibility of the project IRR, NPV, PI, PP, as well as a sensitivity analysis of the limits of feasibility of investment.

The results showed that the availability of raw material rice husk in the region amounted to 422,846 tones NTB per year and the cost of transportation of rice husk waste from the source to power plants in Central Lombok is Rp. 786,866,500/year. Biomass power generation system designs made from rice husks using the concept of Small Scale Biomass Power Plant boiler technology with CFB (Circulating Fluidized Bed). The results obtained by the value of financial calculation of Net Present Value (NPV) at Rp 2,220,803,940,046.01, Payback Periods (PP) at 3.48 years, the Profitability Index (PI) at 15.02, the IRR at 22.78 %, sensitivity analysis at 1.1% with the increase in operating costs by 10% on the value of NPV.

Keyword: biomass, risk husks, biomass power plant, biomass logistic analysis, financial feasibility study on biomass, investment, NPV, IRR, PP, PI, sensitivity analysis, NTB