ABSTRACT

The main objective of this thesis was to determine the potential of biomass palm oil as an alternative energy instead of fossil fuel to produce electrical energy source greater economic value is lower or the waste after it is taken primary products, energy sources biomass oil palm has several advantages such as a an energy source that can be updated (renewable) so that it can provide a source of sustainable energy (suistaiable). Power system (generator biomass) and (Turbine generator) the most optimal model system of grid-connected power generation. Calculation results of potential biomass palm oil (feedstock biomass) by utilizing the wastewater and oil palm shells as a source of energy generator 1, a generator 2 and the calculation of power consumption in the industry that the overall system is a system used the help of the software, in this case HOMER version 2.68 , This software optimizes based on the value of the lowest NPC. Aided simulation and optimization results HOMER software shows that the overall system is most optimal to be applied in PT. Subur Indosawit Pelalawan Riau core power generation system (100%) with Grid PLN (0%). Calculated 0% due to subscription of PLN is not utilized in generating system for generating power consumption can accommodate all industry sectors. The results of the total power generated from the power plant 1 and 2 of 24,520,000 kWh / year of the analysis results Homer Energy.

KEYWORDS: Homer energy, biomass generators, biomass feedstock