

## SUMMARY

RIANTO. Invesment Analysis of Development Alternative Energy to Reduce Energy Cost in PT XYZ. Supervised by BONAR M SINAGA and KIRBRANDOKO.

In manufacture company, management required to find alternative energy sources that cause price of the products become cheaper. Alternative energy is meant here is a source of energy other than oil and gas that is used as fuel for steam generating machine. Alternative energy is widely used for the energy source is coal boiler. However, the use of coal as a fuel source is not permitted to use at PT. XYZ by local environmental agencies because the company's location adjacent to the densely populated area. Other alternative fuels that can be used as engine fuel steam generator or boiler is palm shells. Palm shells began to be used as fuel for boilers because higher calorific value than other alternative fuel and its availability is very abundant. Gross value of palm shells calorie value when tested in an accredited laboratory is 4846 kcal / kg.

To be able to use palm shells as a boiler fuel, the company should invest the engines with alternative fuels. Engines with alternative fuels also require a broader area than the engine with fuel oil or gas. Engine with fuel oil or gas requires a total initial investment of Rp 2,654,404,500.00 and the engine with alternative fuels will require investment of Rp 4,963,520,000.00. The cost of fuel consumption per hour boiler capacity of 5 tons per hour with a fuel gas is Rp 1,722,838.00 while the cost of consumption of alternative fuels with a capacity of 5 tons per hour is Rp 938,060.00. With the savings gained by fuel switching, it can be analyzes whether the investment is feasible to proceed or not. Investment engines with alternative fuel boiler produce a positive NPV value Rp 6,139,834,073.00. Internal rate of return on this investment is 49.03 percent and its payback period is 2,1 years. With the results of this analysis, the investment worth continuing because the NPV is positive, IRR is higher than the interest rate, and the payback period is lower than the limit of return on investment set by PT. XYZ.

After analysis with sensitivity analysis, this investment also has some limitation which is the price of fuel is allowed a maximum of Rp 1,130.81 the decrease in production over the next 5 years do not exceed 44.7 percent, the price of gas fuel is not lower than 6 US dollars per MMBTU, and the exchange rate of the US dollar is not lower than Rp 10,316.00 per US dollar. If the limits is exceeded, the investment boilers with alternative fuels is not feasible

Keywords : sensitivity analysis, palm shells, IRR, NPV, payback period