

## **ABSTRACT**

Generator sets or often referred to as generators are tools that are often used as the main part of the main power plant. Generator sets or often referred to as generators are tools that are often used as the main part of the main power plant. The use of generators as the main power plant has been widely applied in shopping buildings to factories that rely heavily on electrical energy needs. One of them is PT ANTAM, the Bauxite Mining Business Unit. As the main system of the main energy source, the generator must have high effectiveness and optimum conditions. To find out and improve the effectiveness of the generator, it is necessary to conduct an analysis by conducting a case study directly to PT ANTAM, the West Kalimantan Bauxite Mining Business Unit. The data obtained from the case study analysis will then be processed using the Electric Transient and Analysis Program (ETAP) Power Station program to increase the effectiveness (optimize) of the generator as the main energy source at PT ANTAM, where from the generator used by PT. ANTAM with efficiency values , The CATERPILLAR generator has an efficiency value of 50.6% and the DOOSAN generator has an efficiency value of 68.4% while the CUMMINS generator has an efficiency value of 93.2%. It can be said that the purpose of using a generator as an alternative energy and effectiveness is a achieved.

**Keywords:** ETAP Power Station, Generator set.