

ABSTRACT

The main target of every hydroelectric power plant is the profits obtained from the sale of electrical energy, including the Orya Jayapura hydroelectric power plant. These sales can be calculated from the total kWh of production produced per year. The phenomenon that occurs is high machine downtime which is calculated on average from 2019-2022. This downtime causes the unit to be unable to operate so that the production target set per year is not achieved.

The main objective of this research is to determine the results of the analysis of availability efficiency, performance efficiency, quality efficiency using the Overall Equipment Effectiveness (OEE) method at the Orya Jayapura hydropower plant from a technical, correlation and financial perspective.

The research method used is a mixed method, namely in the form of a case study with the presentation of quantitative data processed through the OEE formula, as well as a qualitative approach with cause and effect diagrams as a tool to measure the priority of recommendations for improvement of the third variable discussed.

The results of the analysis of the average Overall Equipment Effectiveness for 2019-2022 at the Orya Hydroelectric Power Plant were 32.76%. This means that the profits generated by the company are low due to equipment ineffectiveness, the main factor being caused by high equipment failure losses in the scope of availability efficiency. This research also proves the correlation between technical data and financial data, that the higher the efficiency of equipment availability, the higher the profits obtained by the company.

From the results of this research, PLTA Orya needs to pay attention to the quality of the company in terms of people, machines, materials, environment and methods. Orya Hydroelectric Power Plant needs to place technical staff, conduct employee training and certification according to their areas of expertise, improve equipment maintenance, and implement strategies that focus on asset optimization and equipment innovation.

Keywords: Availability Efficiency, Overall Equipment Effectiveness (OEE), downtime, profit