

## **AIC-2018-AMOS-50: LIFE CYCLE COST ANALYSIS OF DIFFERENT REPAIR ASSUMPTIONS**

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**Abstract:** This paper presents a mathematical model to estimate the life cycle cost (LCC) of 10 repairable equipment by taking pump as a case. Acquisition, Operation and Maintenance cost are calculated using activity based costing. Number of failure for maintenance cost is calculated for three repair assumptions based on the effectiveness of the maintenance. According to the characteristic that the cumulative failure probability observed a Weibull distribution model is used. General renewal process (GRP) is used to determine these three states. The results of the study show that, acquisition cost is less than 3%, operation cost is in between 85 to 91% and maintenance cost being between 6 to 13% which increase almost two times for minimal repair. Operation and maintenance cost are the highest of the total LCC therefore, it is necessary to have a long-term outlook to the investment decision-making process rather than trying to save money in the short-term by simply purchasing assets with lower initial acquisition costs.