

ABSTRACT

Power outages caused by external factors include two things, namely disruptions caused by natural disasters and disturbances caused by human behavior. Disturbances caused by human behavior in the form of kites can cause power outages or blackouts. The fall of kite ropes is often a problem for the community environment especially in west Kalimantan. Due to the cause of the blackout in West Kalimantan from the kite rope that touches the transmission line, it can cause blackout. Therefore, this study will model resilience in the 150 kV grid, especially in the equatorial system area of West Kalimantan, and this study also increases the level of resilience with the help of the design concept of robots.

The method used in this study is an analytical and statistical method with data in the form of long-time interference on the line obtained from PLN UIKL West Kalimantan. The analytical method generates the probability of kite interference, while the statistical method of analysis uses monte carlo simulations to calculate the level of resilience whether the electrical system is resilient or not when a kite interference touches the transmission system.

Monte Carlo's simulation method produces, on average, forecasting the length of time of disruption. The highest probability on the line that is vulnerable to power outages or blackouts is obtained by 0.193832599 found in the area of line 2 Sei Raya-Siantan. The forecasting results averaged the length of time the disruption before the robot was implemented was 1 minutes for the minimum value and 12 minutes for the maximum value. Meanwhile, the average duration of disruption time after the robot is implemented is 1 minutes for the minimum value and 8 minutes for the maximum value.

Keywords: *Kite, Transmission System 150 kV, Forecasting, Resilience Level.*