

## **ABSTRACT**

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Title : *DETERMINATION ANALYSIS SETTING DISTANCE RELAY 150 kV TRANSMISSION SYSTEM KANCI MAIN SUBSTATION AREA (CIREBON)-KEBASEN SUBSTATION AREA (CENTRAL JAVA)*

*High voltage overhead lines are parts of the electric power system that often experience interference. The 150 KV transmission system on the High Voltage Overhead Line at the Kanci main area substation to the Kebasen substation is part of the 150 KV transmission subsystem which often experiences interference and makes the distance relay always work. The distance relay works as the main protection on the transmission line and the settings on the distance relay affect the safety performance of the transmission line. Improper settings will cause the distance relay system to fail so that it can disrupt the distribution system. Therefore, it is necessary to have good settings for the distance relay. The distance relay protection zone is divided into 3 protection zones. So that there is no overlap between protection zones, the distance relay settings need to be coordinated. In this final project, the transmission line that connects the Kanci – Brebes – Kebasen substation is taken. The results of the calculation of the distance relay settings on the Kanci – Kebasen main area substation. zone 1  $26.86 \angle 82.75^\circ \text{Ohm/Km}$ , zone 2 minimum  $40,301 \angle 82.759^\circ \text{Ohm/Km}$ , zone 2 maximum  $33.781 \angle 82.762^\circ \text{Ohm/Km}$  and zone 3  $39.313 \angle 82.767^\circ \text{Ohm/Km}$ , For Positive sequence while zero sequence Zone 1  $78.995 \angle 79.024^\circ \text{Ohm}$ , Zone 2 minimum  $123.337 \angle 81.185^\circ \text{Ohm}$  and zone 2 maximum  $123.337 \angle 81.185^\circ \text{Ohm}$  and zone 3  $156.605 \angle 79.03^\circ \text{Ohm}$ , with relay working time in zone 1, namely 0.1s, zone 2 0.4s and zone 3 1s.*

*Keywords: Substation, Distance Relay, Transmission Line, Settings, Protection Zone.*