

ABSTRACT

Distribution of electrical energy is the most important final step in the process of distributing energy to customers. PLN ULP Tasikmalaya City as the service provider and sales of electrical energy within the coverage area of the Tasikmalaya City customer service unit, is tasked with distributing quality electricity. The SPAN feeder is the feeder with the worst performance throughout 2023 compared to other feeders under PLN ULP Tasikmalaya City. So it is necessary to carry out an analysis of the reliability of the SPAN feeder to find out whether the SPAN feeder still meets the reliability quality standards or not, based on SPLN 68-2:1986. The reliability index variables sought are SAIFI (System Average Interruption Frequency Index), SAIDI (System Average Interruption Duration Index) and CAIDI (Customer Average Interruption Duration Index). As for analyzing the reliability of the SPAN feeder distribution system, the Section Technique method is used with a reliability assessment simulation in the ETAP 12.6 software. As for the results of the SAIFI, SAIDI and CAIDI values from the SPAN feeder, the output from the Section Technique Method analysis are respectively 1.726136411 failure/customer.year, 3.077933 hour/customer.year, 1.78317798 hour/customer.year. If compared with the SAIFI and SAIDI values, or can be seen from the CAIDI value alone in SPLN 68-2:1986, it can be concluded that the SPAN feeder meets PLN's reliability quality standards or can also be said to be reliable, as for the results from simulations with ETAP 12.6 , the values of SAIFI, SAIDI and CAIDI respectively are 1.737 interruptions/customer/year, 3.0351 hours/customer/year, and 1.747 hours/year. Efforts to improve or increase the reliability index for the most optimal SPAN feeder are Experiment II with a Reliability Assessment simulation in ETAP 12.6 Software which recommends reconfiguration of the SPAN feeder network, namely adding a fuse cut out (FCO) at the branch point load point 3 (KAYA) in section 1 and adding a sectionalizer (SSO) at load point 16 (ALDY) in section 3 which gave the largest reduction percentage with the results of the SAIFI and SAIDI reliability index values for the SPAN feeder after Experiment II, the SAIFI and SAIDI values were 1.6857 interruptions/customer/year and 2.9519 hours/customer/year, respectively.

Keywords: CAIDI, ETAP 12.6, FCO, Reliability, SPAN Feeder, reliability assessment, SAIDI, SAIFI, Section Technique, SPLN 68-2, 1986.