

ABSTRACT

PT PLN Customer Service Unit (ULP) Bengkalis is a company engaged in electricity distribution and customer service. The operational area of ULP Bengkalis covers Bengkalis District and Bantan District. The Sub Pakning service area includes Bandar Laksamana District, Bukit Batu District, and Siak Kecil District. The electrical system in Sub Pakning is supplied from the Dumai Industrial Area Substation and is divided into two feeders: the Oman feeder and the Turki feeder. The purpose of this case study is to analyze the reliability of the Sub Pakning distribution network using the SAIDI and SAIFI indices, based on outage data from July to December 2024 and from January to June 2025.

The results of reliability calculations for the years 2024 and 2025 reveal the dynamics of the electrical distribution system across feeder Oman, RC Seilingsing, and RC Sukajadi. Feeder Oman experienced a decline in reliability, with the SAIDI index increasing from 218% to 328% and the SAIFI index rising from 260% to 468%, indicating more frequent and prolonged outages. RC Seilingsing showed improvement in the SAIFI index, decreasing from 532% to 368%, although the SAIDI index rose from 64% to 155%, reflecting longer outage durations. Meanwhile, RC Sukajadi, which previously recorded no disturbances, began to show minor reliability issues in 2025, with a SAIDI index of 21% and SAIFI of 10%. Overall, the data highlights the need for technical evaluation and enhanced protection systems, particularly for feeder Oman, to improve distribution reliability in accordance with established standards..

Keywords: ULP Bengkalis Sub Pakning, Distribution, SAIDI, SAIFI