

ABSTRAK

ANALISA KEANDALAN JARINGAN SISTEM DISTIRBUSI 20 kV PADA PENYULANG TOMAT DI PT. PLN (PERSERO) ULP MARIANA

(2025 : XIV + 51 Halaman + Lampiran)

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Laporan ini menganalisis keandalan jaringan distribusi 20 kV pada Penyulang Tomat di PT. PLN (Persero) ULP Mariana. Penelitian bertujuan menghitung dan mengevaluasi indeks keandalan menggunakan parameter SAIDI dan SAIFI berdasarkan standar SPLN. Metode penelitian meliputi observasi, wawancara, dan studi literatur. Data gangguan dikumpulkan selama Januari-Desember 2024. Hasil menunjukkan nilai SAIDI sebesar 6,074 jam/pelanggan dan SAIFI 10,026 kali/pelanggan. Meskipun SAIDI masih dalam batas standar, nilai SAIFI tergolong tinggi, menandakan frekuensi pemadaman masih kurang andal. Pembahasan mencakup identifikasi penyebab gangguan serta usulan perbaikan berupa pemeliharaan rutin, pemasangan *lightning arrester*, dan penebangan pohon dekat jaringan. Kesimpulan menyatakan perlunya peningkatan keandalan demi pelayanan yang lebih stabil dan berkualitas kepada pelanggan.

Kata Kunci: Keandalan jaringan, Penyulang Tomat, distribusi 20 kV, SAIDI, SAIFI, gangguan listrik, sistem distribusi, ULP Mariana.

ABSTRACT
RELIABILITY ANALYSIS OF 20 kV DISTRIBUTION NETWORK ON
TOMAT FEEDER AT PT. PLN (PERSERO) ULP MARIANA
(2025 : XIV + 51 Pages + Attachment)

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This report analyzes the reliability of the 20 kV distribution network on the Tomat Feeder at PT. PLN (Persero) ULP Mariana. The study aims to calculate and evaluate reliability indices using SAIDI and SAIFI parameters based on SPLN standards. The research methods include field observation, interviews, and literature review. Disturbance data were collected from January to December 2024. The results show a SAIDI value of 6,074 hours/customer and a SAIFI value of 10,026 interruptions/customer. While the SAIDI is within acceptable limits, the high SAIFI indicates frequent outages, highlighting reliability issues. The discussion identifies disturbance causes and suggests improvements through routine maintenance, installation of lightning arresters, and trimming trees near power lines. The conclusion emphasizes the need for enhanced reliability to ensure stable and high quality electricity distribution service for customers.

Keywords: Network reliability, Tomat Feeder, 20 kV distribution, SAIDI, SAIFI, electrical outage, distribution system, ULP Mariana.