

ABSTRAK

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Program Studi : Teknik Elektro
Judul : Analisis Keandalan Sistem Distribusi 20 kV Penyulang
Solo Di Pt Pln (Persero) Ulp Bengkalis Menggunakan
SAIDI.

Penelitian ini menganalisis keandalan sistem distribusi listrik 20 kV pada Penyulang Solo di PT PLN (Persero) ULP Bengkalis menggunakan indikator *System Average Interruption Duration Index* (SAIDI). Data yang digunakan mencakup jumlah gangguan, durasi padam, dan jumlah pelanggan terdampak selama periode Februari–Juni 2025. Nilai SAIDI dihitung untuk setiap bulan dan dibandingkan dengan standar SPLN 68-2:1986 yang menetapkan batas maksimum 105 menit/pelanggan/bulan. Hasil perhitungan menunjukkan nilai SAIDI berkisar antara 2 hingga 102 menit/pelanggan, seluruhnya berada di bawah batas standar, sehingga sistem distribusi dinyatakan andal. Meskipun demikian, pengurangan durasi gangguan dan pemeliharaan preventif, seperti pemangkasan pohon dan optimalisasi sistem proteksi, disarankan guna meningkatkan kualitas pelayanan.

Kata Kunci – Keandalan Sistem Distribusi, SAIDI, Perhitungan SAIDI.

ABSTRACT

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Study Program : Electrical Engineering
Titel : Reliability Analysis Of The 20 kV Solo Feed Distribution
System At Pt Pln (Persero) Ulp Bengkalis Using SAIDI*

This study analyzes the reliability of the 20kV distribution system on the Solo Feeder at PT PLN (Persero) ULP Bengkalis using the System Average Interruption Duration Index (SAIDI) indicator. The data used includes the number of outages, outage durations, and the number of affected customers during the period of February–June 2025. The SAIDI value was calculated for each month and compared with the SPLN 68-2:1986 standard, which sets a maximum limit of 105 minutes/customer/month. The results show that the SAIDI values ranged from 2 to 102 minutes/customer, all of which were below the standard limit, indicating that the distribution system is reliable. Nevertheless, reducing outage durations and implementing preventive maintenance, such as tree trimming and optimization of protection systems, are recommended to further improve service quality.

Keywords – Distribution System Reliability, SAIDI, SAIDI calculations.