

ABSTRAK

BUDIMAN. Analisis Pemanfaatan Sistem AMR untuk Menurunkan Susut Non Teknis di PT PLN (Persero) ULP Manggar. Dibimbing oleh Ir. Samsurizal, S.T., M.T., IPM.

Penelitian ini menganalisis pemanfaatan sistem Automatic Meter Reading (AMR) dalam mendukung pengendalian susut non teknis di PT PLN (Persero) ULP Manggar berdasarkan data hasil pengolahan pada Bab IV. Penelitian menggunakan metode deskriptif analitis dengan studi kasus satu pelanggan industri berdaya ≥ 13.200 VA pada periode pengamatan 18–25 Januari 2025. Data yang dianalisis meliputi tegangan tiap fasa, arus tiap fasa, daya aktif tiga fasa, serta histori energi dari sistem AMR. Perhitungan dilakukan melalui penentuan arus rata-rata, daya tiga fasa menggunakan persamaan $\sqrt{3}VI$, serta estimasi energi teoritis berdasarkan waktu operasi 24 jam. Hasil analisis menunjukkan bahwa pada kondisi normal daya rata-rata lebih tinggi dibandingkan saat anomali, di mana terjadi penurunan arus yang signifikan tanpa perubahan karakteristik operasional pelanggan. Selisih energi antara kondisi normal dan anomali menghasilkan estimasi energi tidak tercatat sebesar 119,88 kWh per bulan dengan potensi kerugian finansial sebesar Rp 173.106 per bulan. Temuan ini menunjukkan bahwa sistem AMR efektif sebagai alat monitoring berbasis data dalam mendeteksi anomali pemakaian dan mendukung penentuan prioritas pemeriksaan lapangan guna menekan susut non teknis.

Kata kunci: AMR, susut non teknis, energi tidak tercatat, arus tiga fasa, daya aktif.

ABSTRAC

BUDIMAN. Analysis of the Use of the AMR System to Reduce Non-Technical Losses at PT PLN (Persero) ULP Manggar. Supervised by Ir. Samsurizal, S.T., M.T., IPM.

This study analyzes the utilization of the Automatic Meter Reading (AMR) system in supporting non-technical loss control at PT PLN (Persero) ULP Manggar based on the data analysis presented in Chapter IV. A descriptive analytical method with a case study approach was applied to one industrial customer with installed power $\geq 13,200$ VA during the observation period of January 18–25, 2025. The analyzed data included phase voltages, phase currents, three-phase active power, and recorded energy history from the AMR system. Calculations were performed by determining average current, three-phase power using the $\sqrt{3}VI$ equation, and theoretical energy estimation assuming 24-hour operation. The results indicate that during anomalous conditions, a significant reduction in current and active power occurred compared to normal conditions, without corresponding operational changes. The estimated unrecorded energy reached 119,88 kWh per month, with potential financial losses of IDR 173.106 per month. These findings confirm that AMR functions effectively as a data-based monitoring tool for anomaly detection and supports targeted field inspections to reduce non-technical losses.

Keywords: *AMR, non-technical losses, unrecorded energy, three-phase current, active power.*