

## Electricity NTL · Priimal Pulse NTL

**USD 96 billion: estimated annual global cost of electricity non-technical losses to distribution utilities (Northeast Group LLC, cited in World Bank ESMAP assessments, 2021)**

## What is electricity NTL?

Non-technical loss (NTL) is the portion of electricity that reaches the point of consumption but is never billed or collected. Unlike technical losses, which result from physical properties of the distribution network (heat dissipation in cables, transformer inefficiency), NTL is caused by human action or system failure: meter tampering, illegal connections, billing manipulation, and ageing meters that under-register consumption. NTL is the recoverable portion of total distribution loss and is the primary target of utility loss reduction programmes.

## The financial reality

Across developing markets, distribution utilities lose between 10% and 28% of electricity output to total transmission and distribution losses, with NTL accounting for a substantial share. For a mid-sized electricity distribution utility serving 500,000 meters with average monthly consumption of 150 kWh at a blended tariff of EUR 0.12 per kWh, the annual electricity billed should be EUR 108 million. At a 20% NTL rate, approximately EUR 21.6 million in revenue never reaches the utility's income statement each year. At an illustrative 50% recovery rate, the recoverable annual value would be approximately EUR 10.8 million. These losses persist because the data to detect them already exists across billing systems, metering records, and field inspection logs, but those systems were never designed to be read together.

## Dominant loss typologies

- **Meter tampering and bypass:** Physical or magnetic interference with the meter register slows or stops consumption recording while electricity flows normally to the premises.
- **Illegal connections:** Direct connections to the distribution network ahead of the meter point, rendering the meter entirely irrelevant to energy consumed.
- **Billing data manipulation:** Fraudulent adjustment of consumption records by staff, contractors, or meter readers, suppressing read values or creating fictitious credits.
- **Under-registration by ageing meters:** Mechanical meters degrade over time and may systematically under-record consumption by 5 to 15%, generating a persistent billing gap across a large meter estate.
- **Fraudulent reporting by distribution staff:** Agreements between field staff and customers to record lower readings in exchange for payment, exploiting the gap between the meter and the billing system.

## Regional context

Sub-Saharan Africa carries the highest documented NTL burden: IFC assessments identify average transmission and distribution losses of approximately 23% across the region, with NTL accounting for the majority in many markets. South Asian utilities in Bangladesh, India, and Pakistan report average loss rates between 20% and 30% (Energies, 2023). Brazil's national regulator ANEEL documents commercial NTL at 7.3% of distributed energy nationally, while individual state utilities in the north and northeast report rates well above 20%. Published research in Energies (2023) confirms that European markets including Germany, the United Kingdom, and France are also affected, though at lower rates.

### Priimal Pulse NTL: A Vantage product

Priimal Pulse NTL is an AI-scoring and case management platform for electricity non-technical loss. Utilities upload their existing billing records, meter read histories, and field data. Vantage scores every record and returns a ranked case queue of indicators for investigators to verify. Available under Core Value: pay a share of documented recovered value only, capped at the equivalent flat-rate subscription price. Nothing recovered, nothing owed. To learn more, visit [priimal.com](https://priimal.com) or contact [connect@priimal.com](mailto:connect@priimal.com).

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