

GRIDWATCH

A LOW-COST APPROACH TO MEASURING THE RELIABILITY OF POWER SYSTEMS

Across sub-Saharan Africa, more than half a billion people cannot access electricity, while millions more live with unreliable and intermittent sources of power.¹ Data on power quality at the customer level are limited or nonexistent in these contexts. In response to this challenge, nLine has developed **GridWatch**, an innovative, low-cost way to measure grid performance and provide estimates of key performance indicators for grid reliability.

Utility companies can use GridWatch data to identify, track, and respond to outages more rapidly; **regulators** can use the data to monitor utility performance; and **donors** and **governments** can use it to better target investments in infrastructure to help deliver reliable power to the communities that need it most.

nLine provides a turnkey deployment of GridWatch, allowing any of these stakeholders to directly measure grid behavior quickly, precisely, and affordably.

GridWatch Delivers Affordable and Accurate Data on Power Grid Performance

- GridWatch measures power outages and quality in real time through individual plug-in sensors. These low-cost sensors gather high-resolution data—as precise as the individual customer or service point and as frequently as every two minutes—and are combined with advanced data analytics to provide measurements of:
 - Duration of power outages (SAIDI).
 - Number of power outages (SAIFI).
 - Voltage quality (average voltage and voltage spikes and sags).
 - Grid frequency.
- GridWatch monitors grid performance across varied contexts including national bulk power grids, mini- or micro-grids serving individual communities, business parks, or public facilities such as health care centers, schools, and market centers, and systems powered by renewable energy sources.

Achieving **Sustainable Development Goal 7—ensuring access to affordable, reliable, sustainable, and modern energy for all**—will require investments to strengthen and expand power grids. GridWatch data can provide a roadmap for strategic investments.

GridWatch Makes Reliability Tracking Easy for Utilities, Regulators, and Donors

- GridWatch reports key performance indicators, including frequency and duration of power outages.
- Sensors measure voltage and grid frequency, providing insights on power surges and sags (or brownouts).
- Using data gathered across individual sensors, GridWatch highlights patterns in power supply quality. Data can also be compared against utility company reports of SAIDI and SAIFI indicators.

THE INTERSECTION OF ELECTRICITY AND EQUITY

Low-income communities often lack reliable electricity, limiting economic opportunities and forcing households to spend a greater share of income on inefficient sources of power.² With accurate and detailed data from GridWatch, investors and utilities can target improvements for equitable access to reliable power, a vital step toward lifting communities out of poverty.

