Combating Power Diversion and Theft with Enhanced Visibility

Uncover Hidden Losses and Protect Revenue with Real-Time Distribution Transformer Monitoring

LIMITED VISIBILITY IMPEDES DETECTION OF GROWING POWER DIVERSION

Power diversion and theft are escalating global challenges, costing utilities billions in lost revenue. Sophisticated techniques, such as tapping into lateral lines or running power underground, make it difficult to detect theft using traditional methods like smart meters. The 2021 Northeast Group study found that power diversion fraud and billing errors resulted in a staggering $101.3 billion in global losses. In the UK alone, Bitcoin miners contribute to £440 million in diverted power losses annually. Utilities are often left relying on delayed meter data and costly physical inspections, which are reactive rather than proactive, allowing power theft to continue undetected for extended periods.

AN INTELLIGENCE-LED APPROACH TO REVEAL LOSSES AND BOOST GRID EFFICIENCY

The key to managing power diversion and theft is improved visibility and situational awareness. Ubicquia's UbiGrid Distribution Transformer Monitor and UbiVu Intelligent Asset Management platform offer deep visibility into distribution infrastructure. They deliver real-time energy consumption data every two minutes, enabling utilities to detect anomalies that indicate power theft before it becomes a major issue. By leveraging GPS-based mapping, utilities can pinpoint the exact locations of transformers and analyze consumption data by neighborhood or feeder line, allowing for more targeted risk management.

With continuous analytics and real-time asset management, utilities can maintain up-to-date information that aligns with AMI data, providing a comprehensive view of the grid's performance. This proactive approach allows for faster detection and resolution, reducing losses and operational costs.

ubicquia®

VISIBILITY ENABLES MAPPING OUT POTENTIAL THEFT

1. Measure Energy Consumption

DTM+ records kWh usage every two minutes for accurate power usage data.

2. Check AMI Data

Meters show usage and time of use (TOU) captured on 15-minute intervals reported every four hours.

3. Combine AMI and DTM+ Data

DTM+ energy consumption data can be exported as a CSV file and combined with AMI data.

4. Compare Data

Comparing energy consumption data for the same timeframes can show discrepancies and load loss.

5. Respond and Investigate

Large load variations between DTM+ and AMI data can indicate potential theft or meter connections not listed in the meter data management system. Crews can be sent to the right location to investigate.

THEFT INDICATORS MONITORED

- Secondary current and voltage
- Energy consumption (kWh)
- kVA
- GPS-transformer location
- Last gasp
- Sags/swells
- Power loss
- Loop current
- Tilt and impact sensing

ANALYTICS IMPROVES THEFT DETECTION

The UbiGrid® DTM+ and UbiVu enable improved theft detection with a five-step process combining transformer data and analytics with AMI data. This allows utilities to detect and address potential theft issues faster and cost-effectively before they become major losses.

Energy Consumption (kWh)

● kWh

1500 kWh
1000 kWh
500 kWh
0 kWh

12AM 3AM 6AM 9AM 12PM 3PM 6PM 9PM
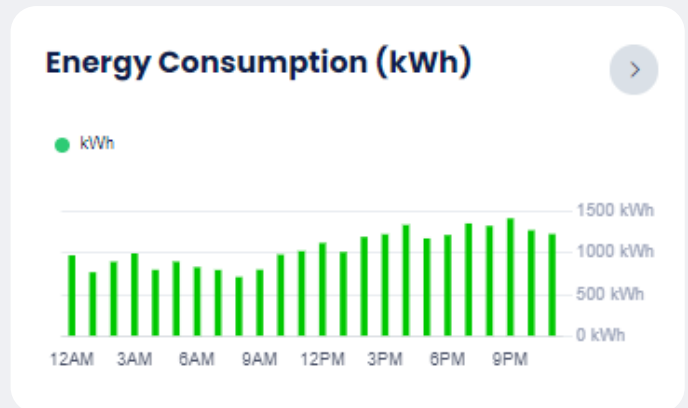
ADVANCED SENSORS, COMMUNICATIONS AND DATA SCIENCE
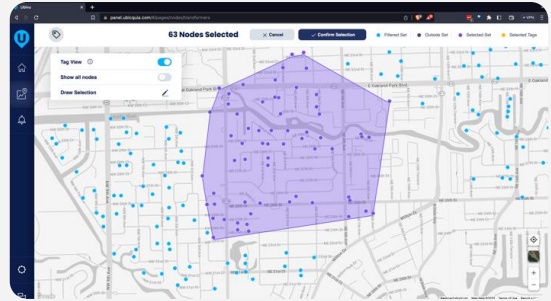
UbiGrid DTM+ and UbiVu: Delivering Comprehensive visibility into Distribution Infrastructure

VISIBILITY FROM SUBSTATION TO METER

The UbiGrid DTM+ installs on single or three-phase pole or pad mount transformers in minutes, instantly transmitting data to enhance grid visibility.

It collects and sends vital transformer and grid data over LTE to the UbiVu cloud-based asset management platform. UbiVu leverages predictive analytics, detailed reporting, and data visualization to close the visibility gap and identify problems before they cause outages.

With open APIs, UbiGrid DTM+ seamlessly integrates with existing grid operations and OSS systems for streamlined operations.

ABOUT UBICQUIA

Ubicquia® revolutionizes critical infrastructure, transforming it into intelligent systems that drive energy efficiency, bolster grid resilience, and streamline operations for utilities and municipalities. Harnessing the power of advanced analytics and AI, Ubicquia processes over 2 billion data points daily, providing insights to optimize the management of streetlights, distribution transformers, and utility poles. Its cutting-edge platforms—featuring sensors, software, and seamless connectivity—are deployed in more than 800 cities and integrated with top-tier manufacturers of streetlights, transformers, and public safety solutions. Ubicquia is headquartered in Florida, supported by a team of over 185 innovators, and holds 95+ U.S. patents.

To learn more:

www.ubicquia.com

info@ubicquia.com