Distribution Transformer Monitoring Improves Reliability
Using Transformer Monitors to Predict and Reduce Outages

6 x
Increase in the number of power outages between 2000-2015.

US Department of Energy

520M
Average customer hours without power annually from 2018-2020, across 2,447 U.S. counties

UW Study in Nature Communications, April'23

$150B
The annual cost of power outages to American businesses.

US Department of Energy

"Power outages can disrupt businesses, damage equipment, and put lives at risk. It's important for utilities to invest in preventative measures to minimize the impact of outages and ensure the power grid's reliability."

Gina McCarthy, former Administrator of the U.S. Environmental Protection Agency

Grid Visibility is Critical to Predicting and Reducing Outages

Significant Blind Spot
Visibility Gap Between the Meter and the Substation

Substation   The Visibility Gap   Meter
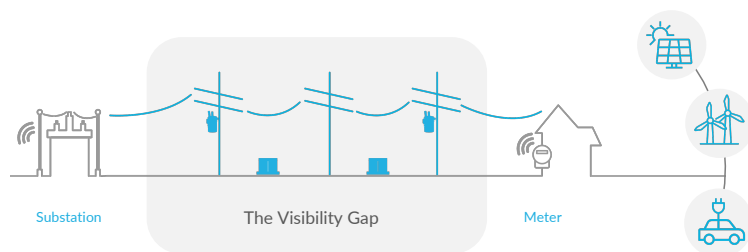
Faulty or aging transformers cause 70% of outages on the grid, downtime, and service costs.

Addressing these challenges requires:
- Transformer situational awareness
- Analysis to spot anomalies
- Continuous high-speed sampling of voltage and current waveforms
- Condition-based asset management

Eliminating the visibility gap is vital to prioritizing maintenance, preventing equipment failures, and improving grid reliability.

ubicquia

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UbiGrid DTM+ Makes Existing Infrastructure Smarter and More Visible

- Installed on **single & 3 phase, pole, or pad-mounted** transformers.
- Collects and sends transformer and grid performance data over an **LTE network** to **UbiVu cloud-based asset management system**.
- UbiVu uses **predictive analytics, reporting and visualization** to eliminate the visibility gap.
- Built with **open APIs** that allow you to integrate data into existing Grid Operations and OSS systems.

UbiGrid DTM+ Delivers Greater Visibility Prevent Outages

Asset Health Awareness
User-friendly real-time health snapshot of critical assets, including pressure, voltage, and transformer utilization.

Predictive Analytics
Powerful artificial intelligence spots anomalies or leading indicators of a potential fault.

Grid Situational Awareness
Visualize faults, detect distressed assets, and identify unplanned loads.

Operational Intelligence
Enables you to move to a condition-based asset management strategy to avoid unnecessary truck rolls and inefficient O&M programs.

Using Data Science to Predict Outages
Ubicquia developed algorithms based on extensive data analysis to **detect dielectric breakdowns up to 27 days before transformer failure.**
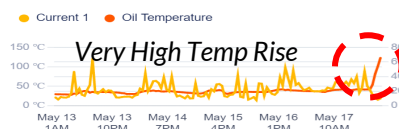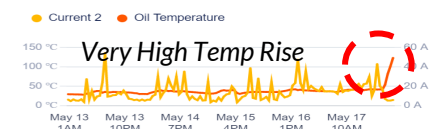
Voltage

Voltage Steps

Voltage 1 · Voltage 2 · Normal Range

170 V
100 V
50 V
0 V

May 13 1AM · May 13 7PM · May 14 1PM · May 15 7AM · May 16 1AM · May 16 7PM · May 17 1PM

Pressure

High Pressure Step

Pressure · Normal Range

20 psi
15 psi
10 psi
5 psi
0 psi

May 13 1AM · May 13 7PM · May 14 1PM · May 15 7AM · May 16 1AM · May 16 7PM · May 17 1PM

Current & Oil Temperature

Very High Temp Rise

Current 1 · Oil Temperature

150 °C
100 °C
50 °C
0 °C

80 A
60 A
40 A
20 A
0 A

May 13 1AM · May 13 10PM · May 14 7PM · May 15 4PM · May 16 1PM · May 17 10AM

Current & Oil Temperature

Very High Temp Rise

Current 2 · Oil Temperature

150 °C
100 °C
50 °C
0 °C

80 A
60 A
40 A
20 A
0 A

May 13 1AM · May 13 10PM · May 14 7PM · May 15 4PM · May 16 1PM · May 17 10AM

About Ubicquia
Ubicquia® creates intelligent infrastructure platforms that are compatible with the 360 million streetlights and 500 million transformers that line our streets. They deliver energy savings, enhance public safety, bridge the digital divide, and improve grid resiliency. Ubicquia products are deployed by more than 700 customers including some of the largest cities, utilities, and mobile operators across North America. To learn more visit www.ubicquia.com or contact us at info@ubicquia.com

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