Trilliant Non-Technical Loss Analytics

Detecting Energy Theft at the Meter Remotely

Non-Technical Loss (NTL) – primarily due to energy fraud, theft, or misconfigured/malfunctioning meters – is a critical and growing challenge for electricity distribution utilities. In fact, it's been reported that utilities worldwide are losing over $100 billion in revenue annually to non-technical losses, and that number is growing. Moreover, NTL can impact the reliability, security, and performance of the entire grid.

While some energy losses are inevitable, utilities are faced with a significant issue when it comes to the specter of theft or fraud. What is needed is a means of identifying, with high accuracy, the end users causing the loss.

A Serious and Growing Problem

A large percentage of non-technical loss takes place at the point of service, where electricity users either partially or completely bypass their meter to prevent it from accurately measuring their energy consumption.

Until now, detecting this illegal (and dangerous) activity has been either abstract or costly. You could

assess your overall energy balances, which indicate the asset and date/time associated with high losses, but do not report on the specific meter or customer associated with the assets causing the loss. Plus, energy balances require prior knowledge of the network topology, and this information is not always available. *So how do you fix this serious and growing problem?* You could take the costly step of sending workers out to inspect random meters, hoping to find the ones that are at fault or have been tampered with. But no matter the source of the problem, remediating non-technical losses from energy fraud, theft or misconfigured meters is a difficult, costly, and inefficient process. Until now!

Introducing Non-Technical Loss Analytics from Trilliant

Non-Technical Loss Analytics from Trilliant is an analytics-as-a-service solution that automatically detects end-user meters with a high probability of having been compromised. This unique solution helps you catch energy thieves at the scene of the crime by showing you the location of each meter that's exhibiting anomalous behavior. You can simply

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visit the address(es) to verify and remediate the theft or misconfiguration.

Increase Revenue – Recover revenue you are currently losing to energy thieves or misconfigurations by detecting non-technical losses at their source

Reduce Labor Costs – Lower your labor costs by sending technicians out to only those addresses with a high probability of having compromised meters

Improve Forecasting – Improve your energy forecasting with a more accurate picture of how much energy is being consumed, and how much you must produce

How Non-Technical Loss Analytics Works

This unique solution detects energy theft or loss at the source. It operates on the principle that tampered or misconfigured meters record anomalies in voltages and energy (power) readings. Catch these anomalies and you catch the thieves, with a clear path to remediation.

"This is something that the industry has been battling forever. With the rollout of AMI, utilities have the opportunity to get more data to solve the problem, but the methodologies being applied are failing to catch a lot of the theft. Our unique technology helps utilities identify the problem accounts automatically, with a high degree of accuracy."

Greg Myers – VP, Global Product Management & Strategy, Trilliant

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Here's how it works:

- Service points (meters) are grouped into clusters
- An unsupervised AI learning algorithm and fuzzy logic determine expected behavior based on load profile patterns for each hour of the day and each day of the week
- Service points displaying anomalies in voltages and energy use are detected and identified based on day-before readings
- A theft- or loss-probability score is assigned to each anomalous service point

- The locations and other information about suspect service points are displayed on an easy-to-use dashboard
- Results are reported in Trilliant's Smart Grid Manager, Microsoft Power BI, and other 3rd-party applications

Ready to slash your Non-Technical Losses at the source? Let's talk. We're happy to discuss next steps that make sense for your utility's unique needs. Contact us today @ Trilliant

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