



# UA Summit<sup>®</sup>

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Hosted by **Entergy**

## Predictive Maintenance for Resilience & Safety

Mark J. Konya, P.E., Advisory Industry Consultant, SAS  
John Lauletta, CEO, Exacter Inc.



SAS



Exacter

# Safety Moment

## HOW TO SAVE A LIFE BY USING AN AED

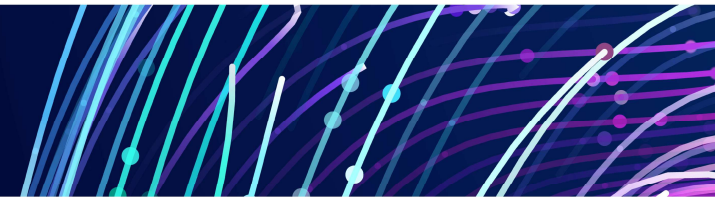
**AED** 

**SUDDEN CARDIAC ARREST** is a condition in which the heart suddenly and unexpectedly stops beating. It causes blood to stop flowing to the brain and other organs. Sudden cardiac arrest is the leading cause of death in North America, and it can affect people of all ages—*anytime and anywhere*. Follow the instructions below to learn how to operate an automated external defibrillator (AED). It could save a life.

- 1 TURN ON**  

- 2 FOLLOW PROMPTS**  

- 3 PRESS SHOCK BUTTON IF INSTRUCTED**  

# Running On The Edge

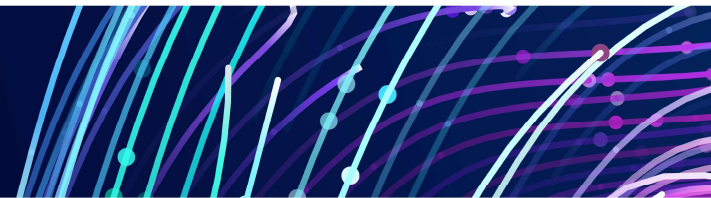
Grid Guardian AI by SAS and Exacter

John Lauletta, CEO, Exacter



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# Mobile Edge-Computing Sensors

An IIOT Solution to Monitor Distribution System Performance



# Akron, OH Pilot Project

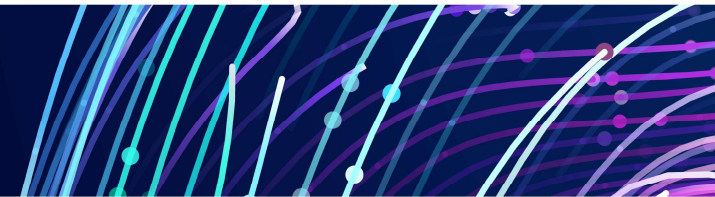


- 18-month Pilot covering 5,000 grid-miles weekly - completed
- Grid Sensor field testing - successful
- AWS Cloud Architecture in place and operating

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# Technical Challenges Addressed



Autonomous Operation



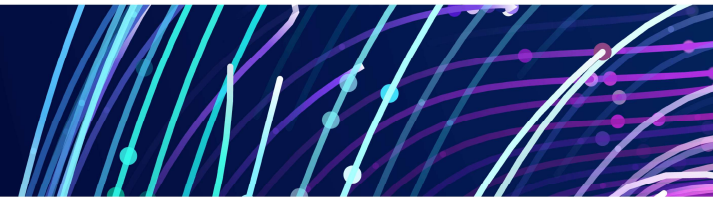
Minimal Power Requirements - Battery Operation



Edge Computing Sensor

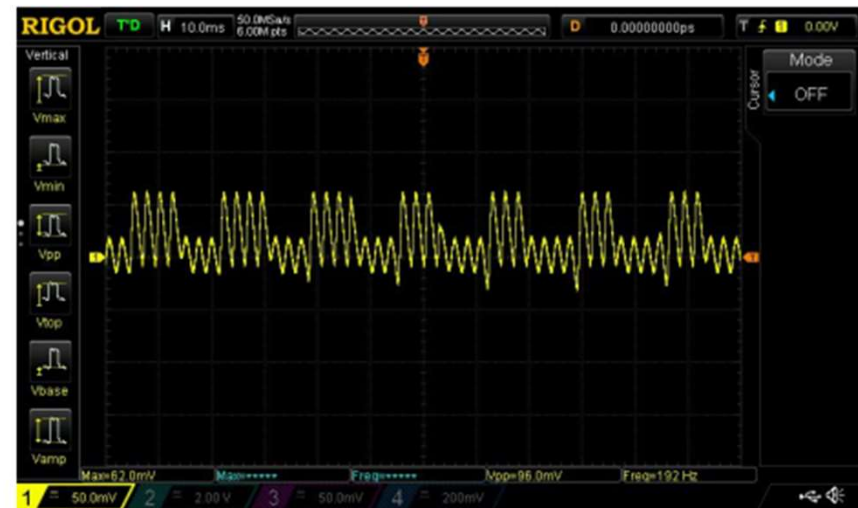


No Vehicle Alterations



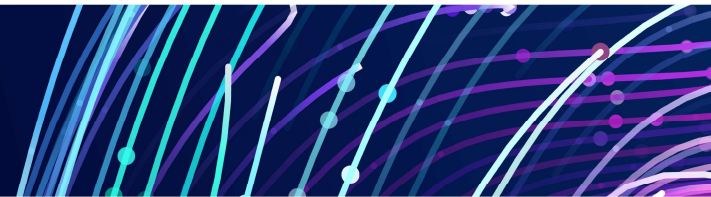
# Partial Discharge: A Key Failure Predictor

- Patented Partial Discharge Analysis Algorithms
- 99% Ground Truthing Achievement
- 14-years of Experience



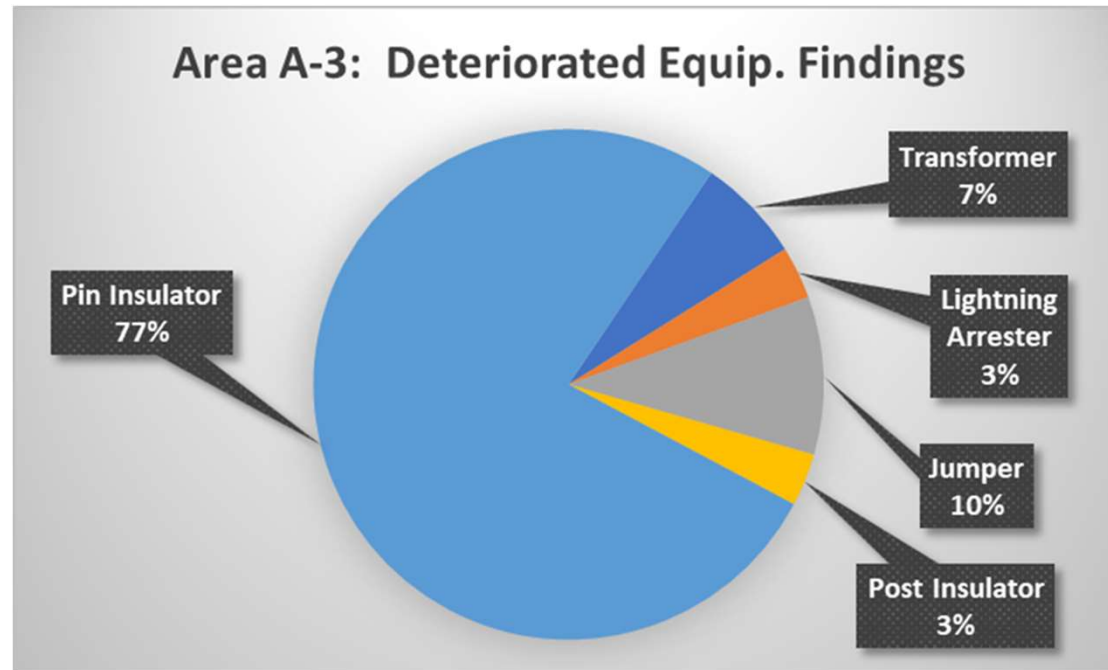
# Benefits of Detecting RF Emissions

- **Scalable**: Automatic detection and location from mobile, edge computing sensors
- **Not Load Dependent**: Circuits need only be energized
- **Not Weather Dependent**: Unaffected by high humidity or rainfall
- **Proven Reliable**: 99% Ground truthing confirmation of findings
- **RF Emissions not Attenuated**: All emission surveys occur on public roadways – no back lot line or alleyway ingress required







# Typical Results

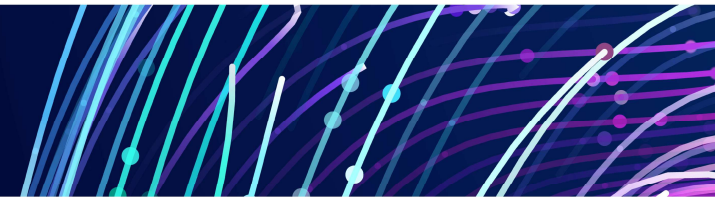


# System-Generated Reports

Attributes	
Latitude	N 39.971201°
Longitude	W 83.043716°
Elevation	733 ft
Exacter Group Number	C2
Finding 1	Transformer
Direction	Streetside left
Location	Bottom crossarm
Finding 2	
Direction	
Location	
Finding 3	
Direction	
Location	
Comments	
Address	1045 Ridge St   Grandview Heights OH 43215   United States

Trekker C2 2021-04-15 13_23_10.JPG	
	
Title:	



# A Hat Trick: Safety, Cost & Reliability

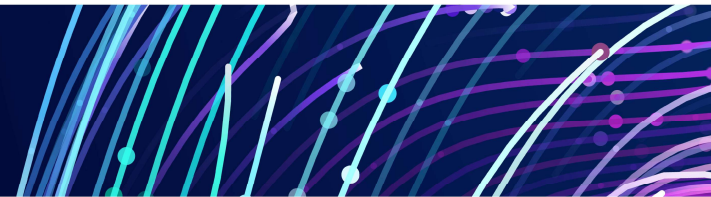
Grid Guardian AI by SAS and Exacter

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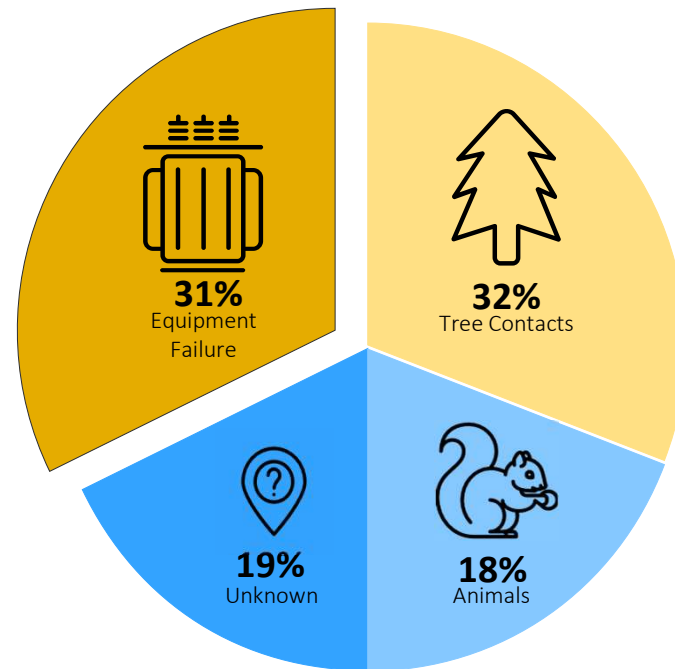


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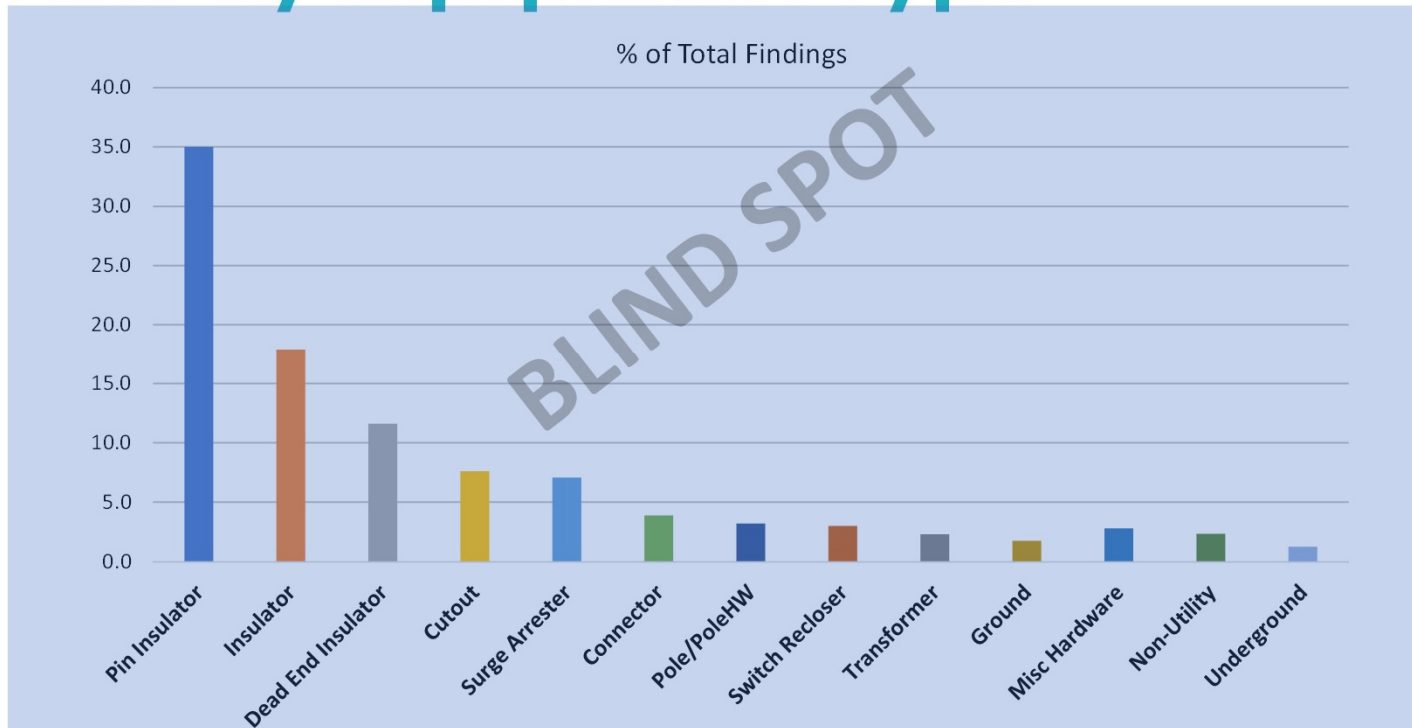
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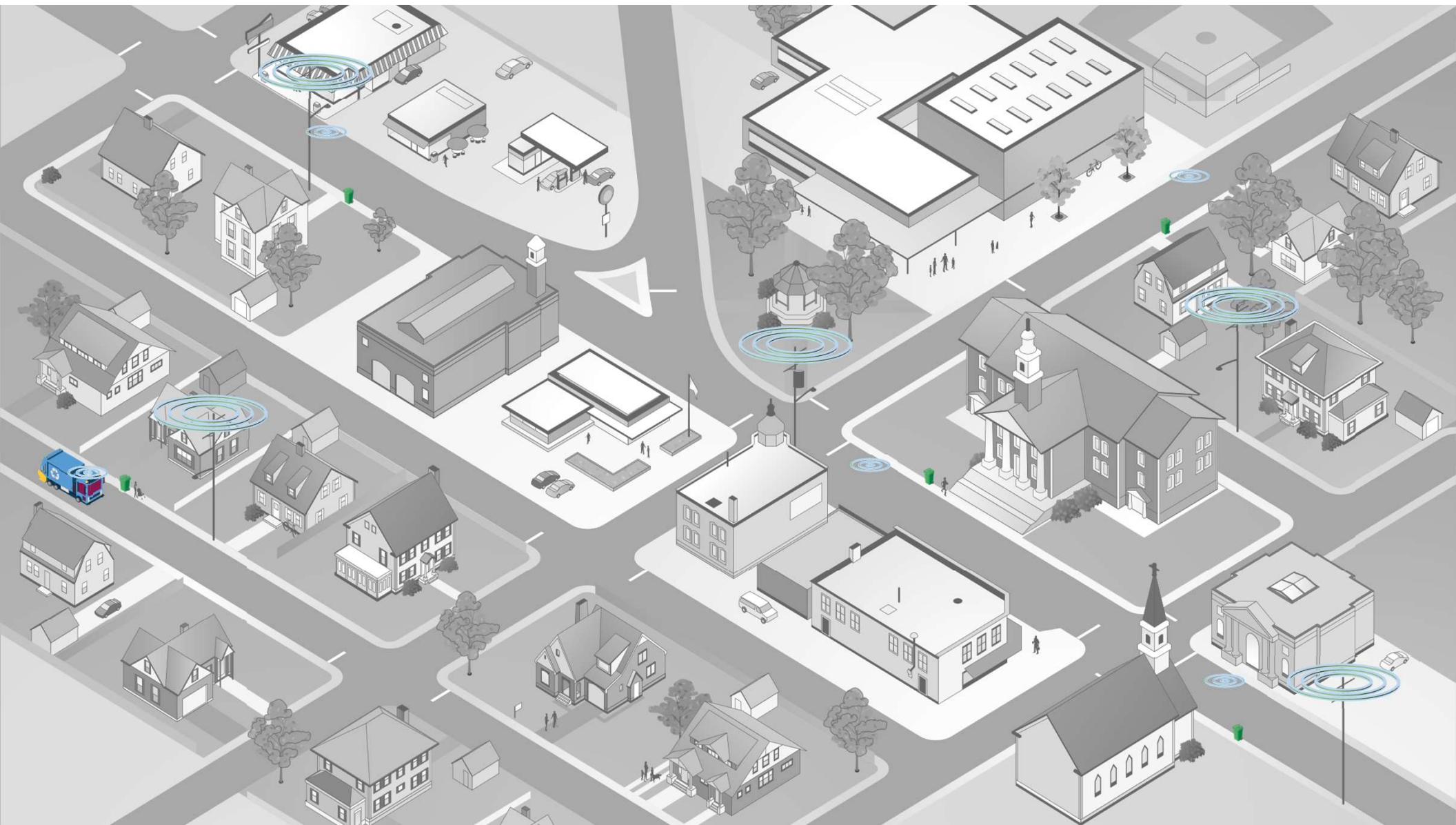


# Do You Know Your SAIFI Contributors?



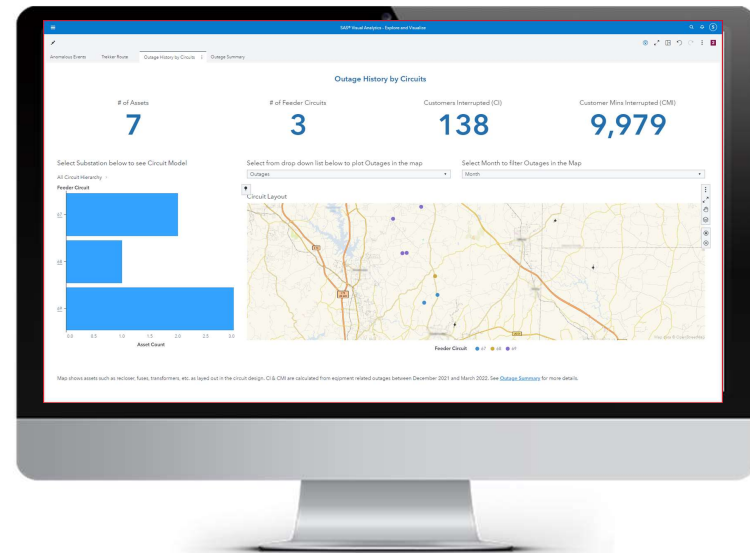
# Results By Equipment Type



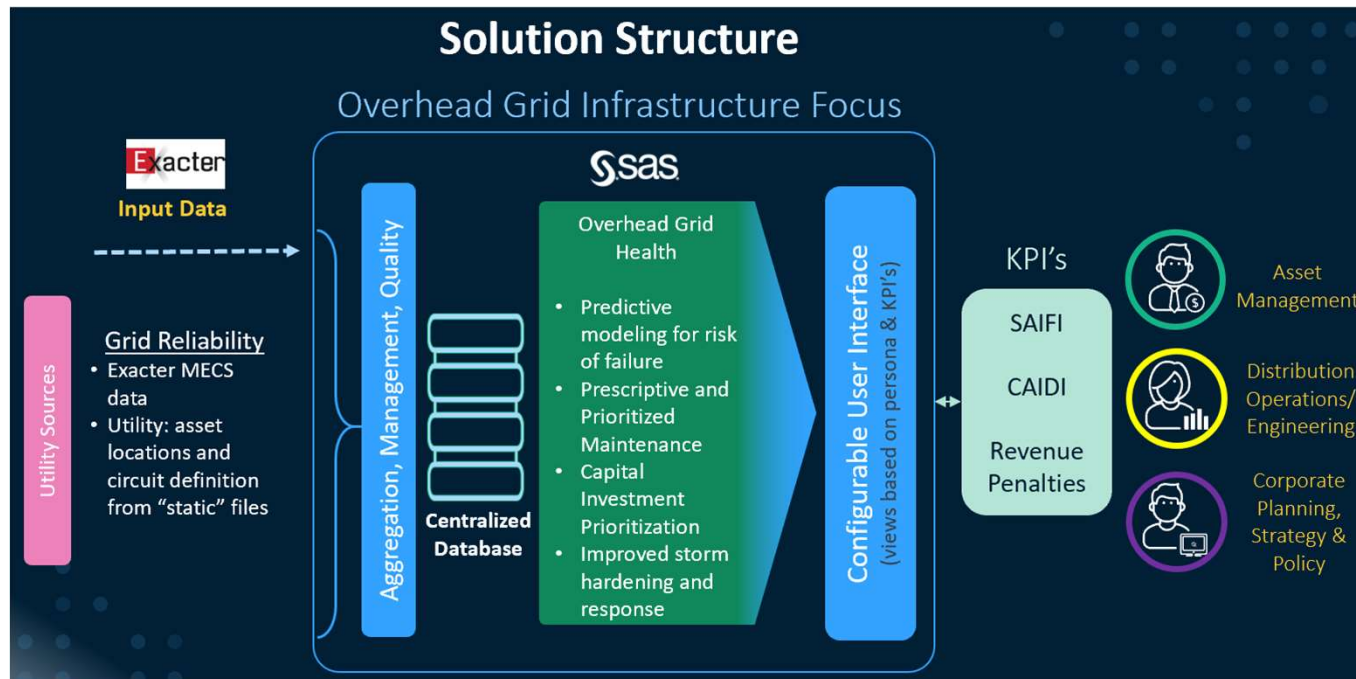


# Grid Guardian AI

Data streams from the edge to **generate meaningful insights into grid health** and provide actionable data for continuous reliability improvement and safety.

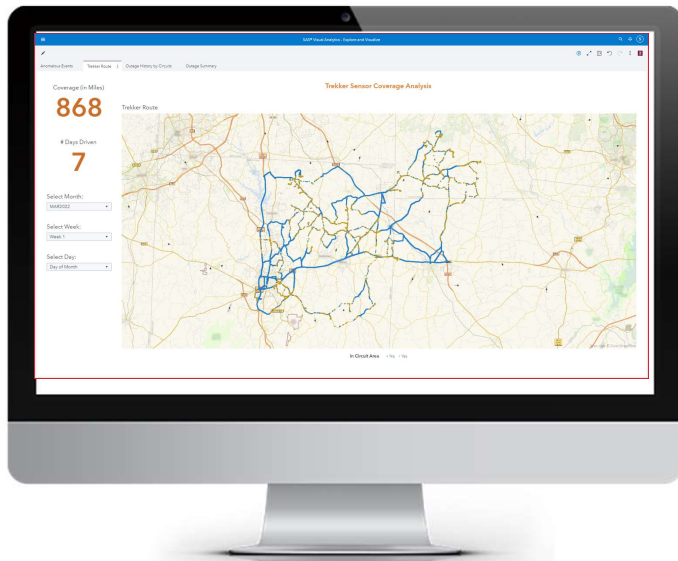


# Grid Guardian AI - Solution Structure





# Grid Guardian AI - Key Features



- Automated clustering of degradation signals
- Intelligent location match-up of sensor to specific utility asset locations
- Prediction of ground truth findings based on signal behavior
- Maintenance recommendations prioritized by CI or CMI

# Grid Guardian AI - Benefits

## DIRECT

**38%**

Reduction in hazard rate for injuries and fatalities.

**33%**

Reduction in crew cost for overtime.

**18%**

Reduction in crew time restoring outages.

## INDIRECT

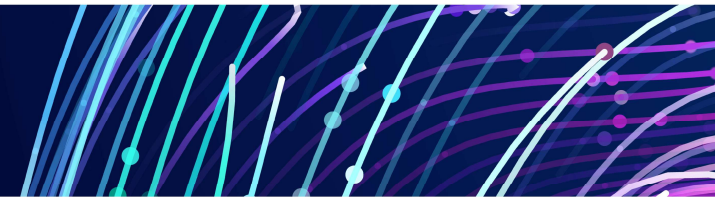


**Higher** customer satisfaction

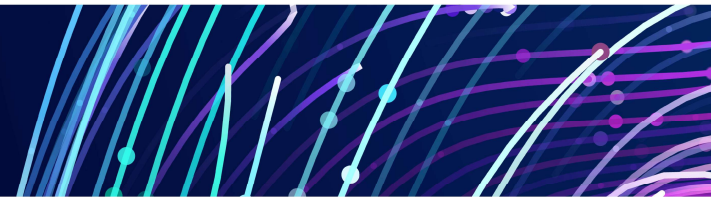
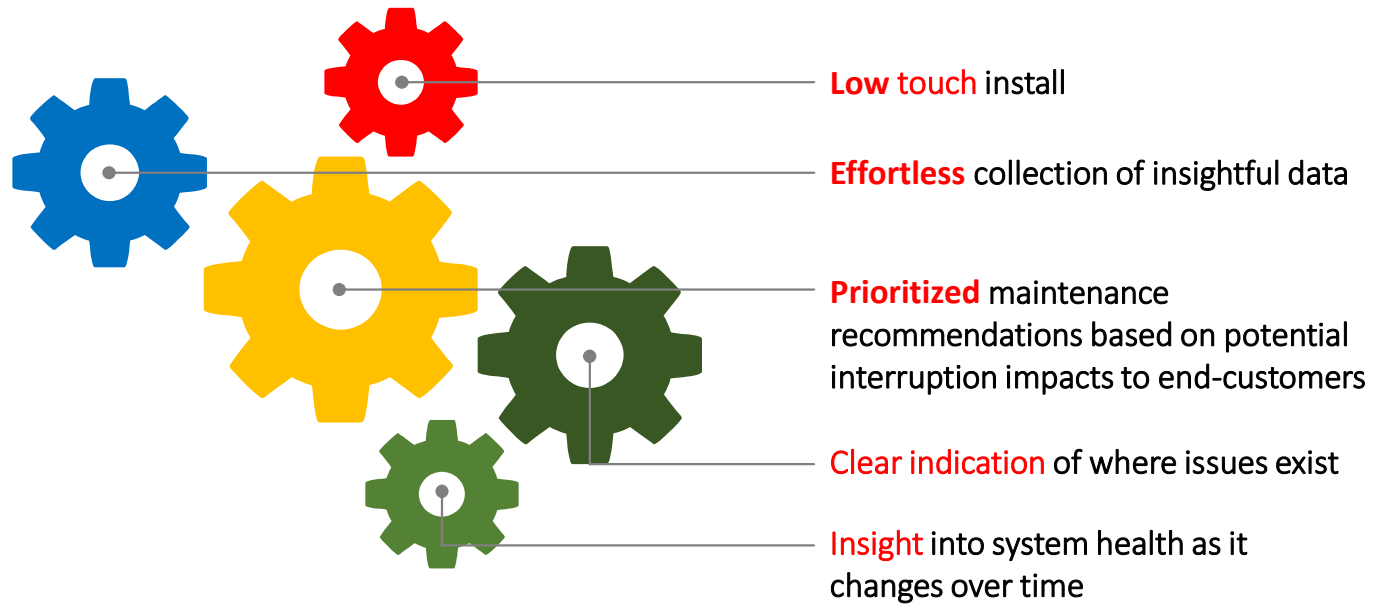
**Reduced** cost of outages



**Avoided** regulator penalties



# Can It Be This Easy?





# THANKS FOR ATTENDING

*Please fill out an evaluation form and drop it in the collection basket located at the back of the room.*

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## **PREDICTIVE MAINTENANCE FOR DISTRIBUTION GRIDS**

Achieve unparalleled reliability and service levels using mobile IoT sensors, AI and advanced analytics.

[Learn more about SAS® Grid Guardian AI](#)



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