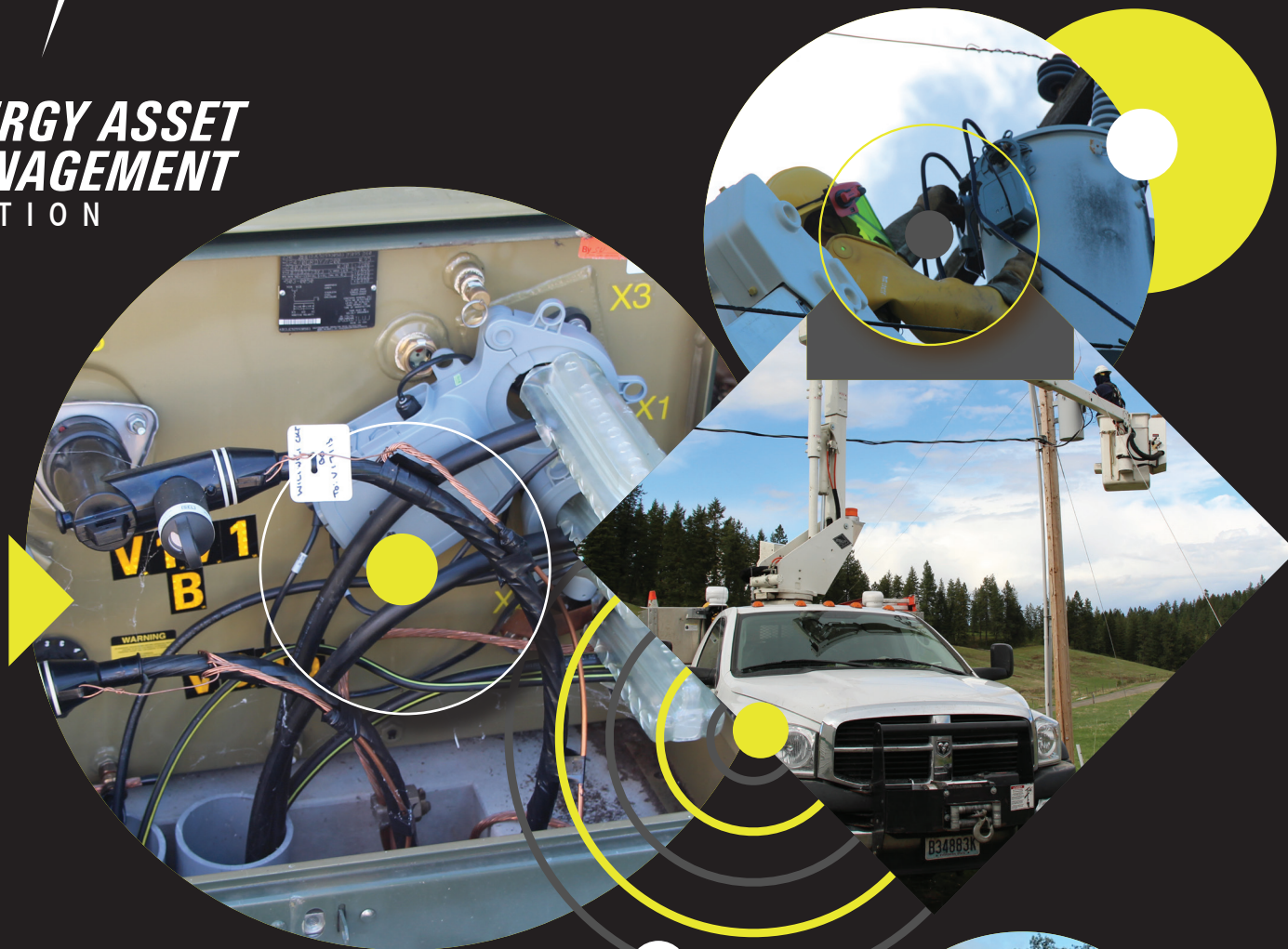


# ENERGY

## Tech Review

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**ENERGY ASSET  
MANAGEMENT**  
EDITION



**SPEARHEADING A NEW  
ERA OF ACCURATE,  
DATA-DRIVEN GRID  
MANAGEMENT**

# GRID20/20, INC



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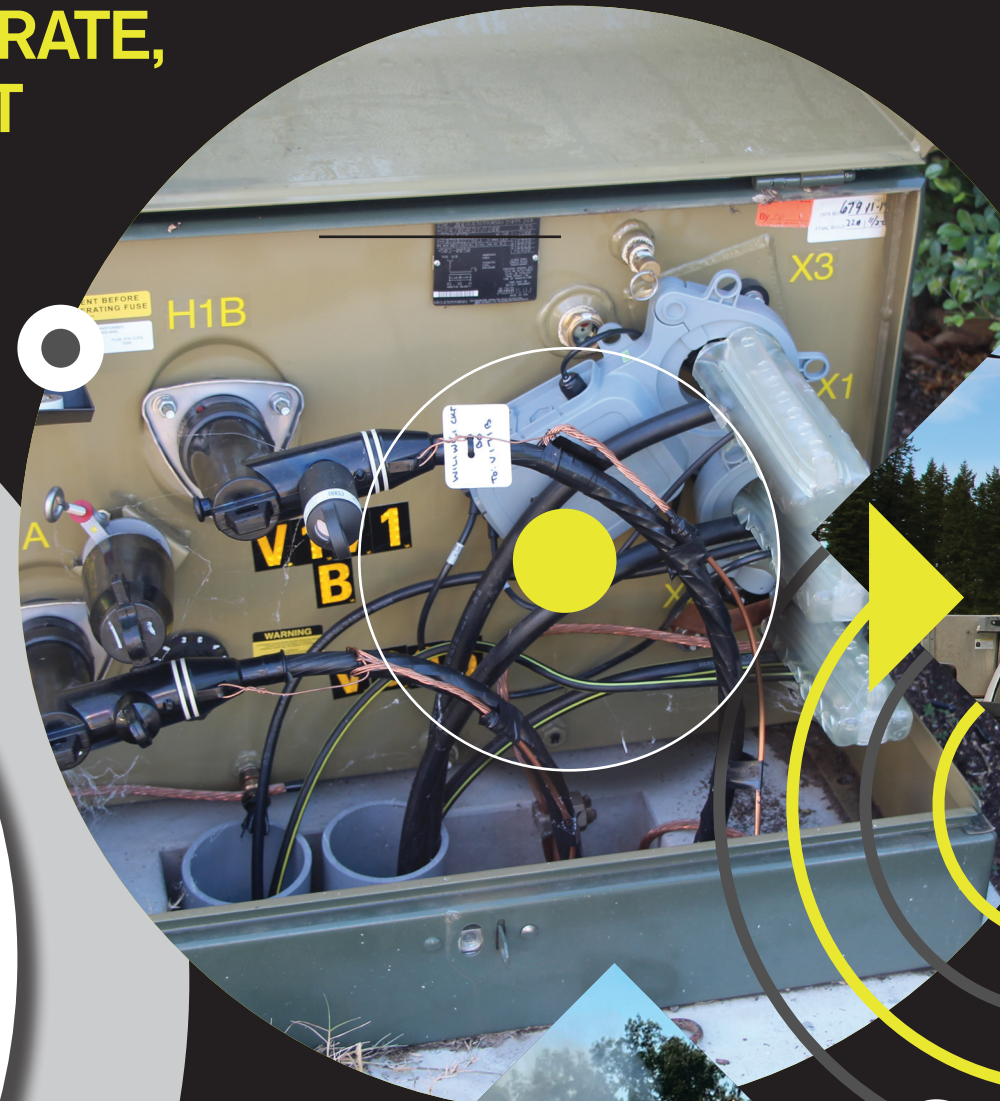
## SPEARHEADING A NEW ERA OF ACCURATE, DATA-DRIVEN GRID MANAGEMENT

**B**uilding a sustainable and resilient grid is at the heart of every forward-looking utility provider's mission. One of the most important pieces in the grid reliability puzzle is intra-grid intelligence, which is crucial to monitoring distribution transformer performance, preventing network disruptions due to overburdened and failing equipment, and reducing operational nightmares. Early detection of developing or occurring grid asset failures using intra-grid intelligence powered by smart solutions can extend the lifetime of distribution transformers and related assets, reduce outages, and lessen the liability risk associated with grid failures and certain public safety events.

GRID20/20 is at the forefront of helping electric utilities access unique grid data and gain actionable intelligence to maximize grid reliability using Auto Alerts to enhance operator awareness.

Its flagship offering, Advanced Transformer Infrastructure (ATI)<sup>®</sup>, is a patented technology that leverages the novel data and strategic location value of distribution transformers, equipping operators with actionable insights into grid operations. ATI consists of OptaNODE<sup>®</sup>, a best-in-class suite of distribution transformer monitors that can capture and report a host of valuable data points from within the most dynamic and vulnerable grid segment.

Additionally, by combining the ATI technology chassis with atmospheric and environmental sensing capabilities, GRID20/20 has also purposefully developed GRIDWIDE FIRE-SPY<sup>®</sup> (GFS) to address grid and non-grid-related wildfire and public safety event issues. GFS helps to keep fires smaller, reduce harmful greenhouse gas emissions,



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better protect communities, and lessen insurance provider exposure.

### A Game-Changing Solution that Stands the Test of Time

GRID20/20 is mindful of the barriers that deter technology adoption in the utility space. When the company was founded 12 years ago, it realized utility operators prefer time-tested and reliable solutions. This realization inevitably became a foundational element of its mission.



W. Alan Snook, II,  
President

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“Over the years, we have deployed thousands of units and successfully tested ATI in 15 countries. This is a testament to the fact that ATI is a time-proven, safe, and effective technology that operators can leverage with confidence,” says W. Alan Snook, II, president of GRID20/20.

A reliable monitoring solution is a key factor. Grid damage and asset failure events occur routinely in the distribution grid, which causes daily operating challenges. In part, this is due to the vast expansiveness and frontlines exposure of distribution assets like power poles, transformers, power lines, and meters. Weather-related impacts also introduce grid dynamics and serious challenges. And today’s rapidly accelerating grid-edge impacts are prematurely pushing aged grid assets beyond their intended operational limits.

From asset management and grid modernization perspectives, ATI provides utility operators with meaningful, necessary, and empirical intra-grid visibility to help eliminate pervasive, otherwise unknown conditions occurring throughout the distribution grid. Historically, the grid space

between substations and endpoint meters was dubbed the ‘black hole.’ Given a lack of technology, operators were relegated to reactively managing this vital, vulnerable, volatile, and dynamic grid segment. However, ATI now purposefully flips this paradigm in favor of asset managers by posturing them for proactive grid management capability.

Once ATI is deployed within the distribution grid, operators immediately gain access to key data. Examples include voltage visibility, load/overload awareness, outage notifications, transformer longevity data, downed conductor notifications, and phase imbalance. The deployment of ATI is akin to ‘turning on the lights’ within this previously dubbed black hole, thereby enabling operators to proactively recognize undesirable intra-grid conditions and empirically understand asset status and health factors.

### Delivering Value through Innovation

By turning the traditional, reactionary approach of power distribution operations into a proactive capability, GRID20/20 emerges as the answer to the persistent quest for superior distribution grid management.

These necessary gains are not sufficiently achievable via smart meters alone. And perpetual electricity availability is now a must-have in today’s world. That’s why ATI is the necessary next step in grid modernization, following the industry’s comprehensive deployment of advanced metering infrastructure, which initiated the smart grid transition.

Another critical reality setting the stage for ATI’s expanded adoption and active use is the dilemma posed by aged transformers. Most of the estimated 50 million distribution transformers in the U.S. were installed 20 to 30 years ago; long before clean energy interests emerged. When many transformers were deployed, today’s unprecedented electricity demands and grid-edge impacts were largely unforeseen. Now, our aged transformer fleets are significantly overburdened in many locations due to the introduction of these unanticipated loads and fluctuating voltage conditions.

Rising climate concerns also add to the challenges. Large-scale deployment of rooftop solar and substantial electric vehicle charging stations at the residential and commercial levels are driven by increased clean energy pursuit. Ongoing installation of these clean energy technologies further contributes to an already occurring grid-stressed condition. In parallel, a transformer supply shortage has developed. Many operators are now relying on their stockpile of transformer assets, but that is a finite supply. Collectively, this series of unprecedented conditions means the Perfect Storm regarding grid reliability concern is already at our doorstep.

ATI presents a viable solution to today’s undeniable, unfolding grid challenges. The substantial, unplanned load burdens on aged and failing transformers can be avoided by leveraging granular data from ATI sensors; creating instant smart transformers. This capability will improve the longevity of grid assets, improve reliability, and help utility operators tackle transformer shortages.

Using ATI grid intelligence for the smooth functioning of transformers and other assets is one side of the equation. Mitigating devastating asset fires to improve public safety, reducing environmental and economic damage, and contributing to the ongoing net zero initiative are equally important.

Transformers typically exist right where we all live, work, sleep, and play. This is where GRIDWIDE FIRE-SPY® (GFS) comes into play. It leverages the strategic location, height, and deployment density of existing overhead distribution transformers to create an always-on monitoring and auto-alert system to help protect communities from wildfires; regardless of the fire’s root cause.

Via Auto Alerts capability, ATI and GFS are designed to help prevent the high cost of grid failures and public safety events in terms of money, economic impact, environmental damage, fatalities, insurance, and legal actions. We need to ask ourselves, “What is the cost of fire suppression, law enforcement, medical assistance, legal and insurance payments when grid asset failures occur or when wildfires ravage a community? And what is the cost of rehabilitating an area in the wake of an event?”

ATI and GFS help prevent some of these instances, accelerate response and remediation, to ideally lessen the magnitude of community impact and damage.

“The adage, ‘an ounce of prevention is worth a pound of cure,’ perfectly describes the worth of ATI and GFS technology deployments within our communities. The cost of deploying these solutions can be as low as about \$1 to \$2 per month per customer within a utility’s service area, which is negligible when compared to the costs involved in responding to events and rehabilitating the damage,” says Snook.

In the US, the annual cost impact of power outages, and the annual cost of wildfires is typically measured in billions of dollars. This clearly shows that GRID20/20’s systems are worth the investment.

### Solutions for Lasting Operational Excellence

What makes ATI different and more reliable compared to other solutions in the market is its time-proven, field-proven longevity. Using ATI, we can improve grid reliability, safely embrace rooftop solar and residential electric vehicle charging station installations, reduce power outages, accelerate power restoration, improve voltage regulation, reduce greenhouse gas emissions, improve customer experience and public

safety, assist with ongoing electrification, and help protect our environment. ATI and GFS can each support a long list of critical value propositions.

### Scripting Numerous Client Success Stories

GRID20/20 has assisted various utilities with different needs to achieve their operational goals. In one instance, it engaged with Hawaiian Electric (HECO), a proactive utility that was exceptionally receptive to GRID20/20. HECO initially adopted ATI for managing ongoing photovoltaic (PV) penetration. They were experiencing an unprecedented influx of rooftop solar deployments at the residential level. Because PV penetration and grid-related impacts were relatively unknown at the time, HECO wanted to obtain accurate, timely, and granular intra-grid visibility. By deploying ATI sensors, up to nine departments within HECO began using the novel intra-grid data.

Since then, GRID20/20 has been delivering data to HECO, helping facilitate the successful handling of PV and other projects. Throughout this nine-year relationship, GRID20/20 has learned that PV penetration can cause unanticipated voltage fluctuations and create transformer load/overload conditions driven by reverse energy and forward demand.

As the industry continues transitioning from traditional energy supplies to distributed energy forms such as residential solar, time-tested ATI will surely be solicited by other utility operators.

“We are all in this together. Our company has pioneered a technology class that will be chased by others to replicate because the value of empirical data visibility from within one of the most unknown and misunderstood grid segments is huge during this era of electrification,” says Snook.

GRID20/20’s competitive edge resides in its years of successful, committed persistence. The team ensures clients unlock the benefits of its solutions to the fullest by following a customer-centric approach, intently listening to their needs, and crafting powerful solutions to meet them.

Through relentless efforts, the team has proven to the industry that ATI is ready for prime time and scalable, solving serious grid-edge issues, and reducing environmental damage, while helping to reduce corporate liability risks.

### Today’s Reality

The world’s most pronounced societal shift toward climate change adaptation and electrification is now unfolding, and GRID20/20 is well-positioned to tackle it. A name that resonates with trust and innovation, GRID20/20 will remain committed to helping its customers facilitate safe and effective electricity distribution in this unprecedented, monumental era. ATI is clearly the next necessary step in our society’s ongoing quest for grid modernization, and GFS is now postured to attack our ongoing wildfire woes. **ET**