



Leverages Electricity Grids for Fire Mitigation and Public Safety Gains



Outdoor Smoke, Fire, Ambient Temperature, Humidity Monitoring

Downed Conductors, High-Risk Assets, Grid-Related Concerns Revealed



*Electricity Grids = The **SOLUTION** to Fire Mitigation Needs*

Throughout recent years, grid operators have been under tremendous pressure and scrutiny regarding asset failure-induced wildfires, and related devastation. The combination of aging grid assets, climate change, intensifying storms, extended dry seasons, etc. has created an ongoing recipe for disaster. And year-after-year, the painful truth of this reality is playing out within the US, and throughout certain countries around the globe.



Wildfire Risk and Liability Risk are REAL

Utility operators, political leaders, government officials, first responders, and the public at-large can ALL agree on these common understandings.

And surely everyone can agree upon the need to take swift, meaningful action.

In our haste to find solutions, perhaps we have been overlooking a great opportunity.

Understandably, many are concluding that our grids are a substantial part of the ongoing wildfire problem; **however, maybe a “game-changing” solution is actually provided to us by the grid itself.**

Leveraging our existing grid assets will accelerate fire mitigation progress, reduce disaster occurrences and severity, lessen liability risks, and decrease solution costs.

Genuine Focus

Given historical events, we now see a substantial industry-wide effort underway to develop and/or identify, then actively engage solutions that will de-risk our grids. Thereby increasing protections for our communities and the surrounding environment. Although fire mitigation solutions will undoubtedly involve multiple approaches, clearly there is great value in employing the most comprehensive solutions available, and doing so as quickly as possible. Unquestionably, our industry focus on fire mitigation is now sincere and aggressively in-process; and stakeholder support is fully aligned.

A series of fire mitigation options have surfaced including, but not limited to: increased vegetation management, the use of drones, advanced fault indicators, escalated asset inspections, etc.

But which solutions will ultimately serve as “the game-changers”?

How can we get from high-risk to safety, quickly?

Introducing **GRIDWIDE FIRE-NET™**

**Outdoor Smoke, Fire, Ambient Temperature, Humidity Monitoring
Downed Conductors, High-Risk Assets, Grid-Related Concerns Revealed**

While it is true that grid asset failures have contributed to certain wildfire events, it is equally true that many non-grid induced wildfires have contributed to our perennial fire season woes. For example, lightning strikes, arson, and unattended fires have been the source of many costly public safety events.

In turn, it is improper to suggest that grid operators are the bad guys, as some have done. **In fact, utility operators will likely become our most welcomed fire mitigation solution providers.** How so?

By strategically leveraging existing grid assets, most notably the distribution transformer fleets, operators will soon embrace a novel public safety solution to address our ongoing fire mitigation and other safety protection needs. The unique location, height, and deployment-density value presented by our overhead transformer fleets will lead to community-wide, outdoor monitoring and early notification solutions.

Our valued grid operators will lead this game-changing, multi-purposed initiative.

Existing transformer fleets will soon facilitate a “multi-level” fire mitigation and public safety defense solution; to simultaneously address both grid, and non-grid induced events.

GRIDWIDE FIRE-NET
Early Detection, Auto Alerts, Prevention™

“Always-On” Monitoring Creates A Community-Wide Defense Solution

Benefiting Utility Operators, First Responders, And All Stakeholders

| | | |
|----------------------------|--------------------------------------|-------------------------------------|
| ✓ Early Detection of Fires | ✓ Downed Conductor Detection | ✓ Reduced Liability Risk |
| ✓ Automated Alerts | ✓ Outage Notifications | ✓ First Responder Safety Protection |
| ✓ Prevention Capabilities | ✓ Greenhouse Gas Emissions Reduction | ✓ Reduced Fire Suppression Costs |
| ✓ Situational Awareness | ✓ Public Safety Protection | ✓ Decreased Environmental Damage |

A NOVEL FIRE MITIGATION & PUBLIC SAFETY SOLUTION

Unique, Ubiquitous Solution

GRIDWIDE FIRE-NET involves the use of rapidly installed patented intra-grid sensors being comprehensively deployed upon existing distribution transformers. The locations, heights, and deployment density of existing overhead transformer fleets presents a unique opportunity; creating a *ubiquitous community-wide, first-ever, “Always-On” overhead outdoor monitoring solution.*

GRIDWIDE FIRE-NET presents a sensor suite solution that is designed to detect and promptly report smoke, fire, ground/surface temperature, ambient temperature, humidity, etc. In turn, operators (and authorized authorities) will benefit from important **Early Detection, Automated Alerts, and Prevention** upsides facilitated by this novel solution. When it comes to fire suppression efforts, and public safety, “Time is of the Essence”. By utilizing this “Always-On” overhead monitoring and auto alerts solution, operators (and authorities) will expedite their awareness, and subsequent response to unfolding fires, wildfires, and public safety events.

Likewise, given comprehensive deployment of **GRIDWIDE FIRE-NET** sensors, operators (and authorities) will have access to ongoing data streaming from within the unfolding event(s) scene.

This added value will provide helpful **Situational Awareness** information that can be used to understand, gauge, and track unfolding events. Thereby uniquely facilitating pre-emptive efforts to reduce or avoid further damages, decrease personal injury and loss of life, lessen environmental impacts, reduce suppression costs, help to protect first responders, etc.

As mentioned, **GRIDWIDE FIRE-NET** provides a unique **Prevention** element. “An ounce of Prevention is worth a pound of cure”. As recent grid-asset induced fires have validated, gaining perpetual access to valuable, otherwise unknown intra-grid data is key. This is how some future wildfire disasters will be entirely avoided, and how others will be minimized. Now, more than ever, **continuous grid asset and intra-grid conditions monitoring is required; and is achievable.**

By providing ongoing intra-grid asset and dynamic intra-grid conditions monitoring, **GRIDWIDE FIRE-NET provides operators with unique, proactive visibility into the least monitored, most dynamic and most vulnerable segments of their grid.** Specifically, by continually monitoring each overhead transformer for ever-changing load/overload conditions, etc, and receiving unique intra-grid data regarding various intra-grid conditions such as undesirable fluctuating voltages and current, downed conductors, etc., operators can now **proactively uncover emerging problems and prevent** certain asset failures, prevent asset fires, and prevent subsequent wildfires. This ability enables us to reduce a series of risks and costs that otherwise are destined to recur due to ongoing climate change, aging grid assets, and other threatening variables.

The ubiquitous network of aggregated intra-grid sensors used to establish GRIDWIDE FIRE-NET perpetually delivers vast, insightful datasets to operators. Timely, accurate, granular, reliable intra-grid data consistently being provided to operators is a key Prevention feature afforded by the GRIDWIDE FIRE-NET solution; which is above and beyond the equally valuable Early Detection and Auto Alerts capability.

And, **GRIDWIDE FIRE-NET** devices will continue to deliver critical **Situational Awareness** data from within and around the unfolding fire/wildfire/public safety event(s). Thereby giving operators and authorities an improved ability to manage event(s), and strengthen their public safety decision-making capabilities.

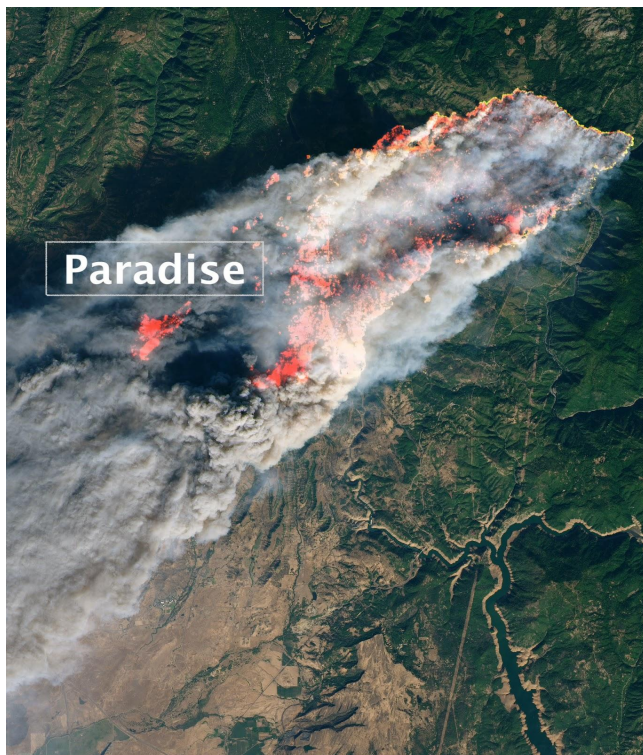
Closing

As the US notably experienced in 2017, 2018, 2019 and 2020, grid asset failures **and** non-grid induced events can lead to devastating wildfires, billions of dollars in damage, personal injury, loss of life, enormous Greenhouse Gas emissions (GHG), a wake of post-event destruction, and massive rebuilding costs. Wildfires cause overwhelming loss annually; oftentimes that loss is priceless.

Sadly, the November 2018 Paradise California event accentuated previously unimagined risks associated with wildfire impacts; including tremendous human suffering, community devastation, billions of dollars for legal, liability and settlement costs, plus the unprecedented bankruptcy of a leading US utility. This event was arguably everyone’s greatest eye-opening experience in the US. Unfortunately, Oregon and Australia have endured similar unforgettable events; others have also.

Yes, these nightmare situations CAN occur again – virtually anywhere. But, improved technologies, focused efforts, and increased funding support are now being applied to help avoid future catastrophes. **GRIDWIDE FIRE-NET presents a clear, multi-purpose defense solution.**

The following US wildfire example illustrates the cost-effective community protection solution now presented by GRIDWIDE FIRE-NET. **Delivering years of “Always-On” monitoring capability** throughout an entire utility service area. The investment value of this game-changing technology is favorable; as validated by the massive damage potential that just **ONE** wildfire event can unleash.



Camp Fire, CA, November 8, 2018

Photo by NASA

ONE Wildfire Event - Camp Fire, Nov 2018

- Total Costs & Damages = **\$16.65+ Billion**
- Fatalities = **85**
- Suppression Costs = **\$150+ Million**
- Liability Costs = **\$13.5 Billion**
- Total Buildings Destroyed = **18,804**
- Residences Destroyed = **14,000 (est)**
- Acres Burned = **153,336**
- Firefighters At Risk = **5,596+**
- GHG Emissions = **3.9+ Million Metric Tons**
- Utility Pleads to Manslaughter = **84 counts**
- Financial Result = **Utility Bankruptcy Filing**

GRIDWIDE FIRE-NET - Estimations for PG&E

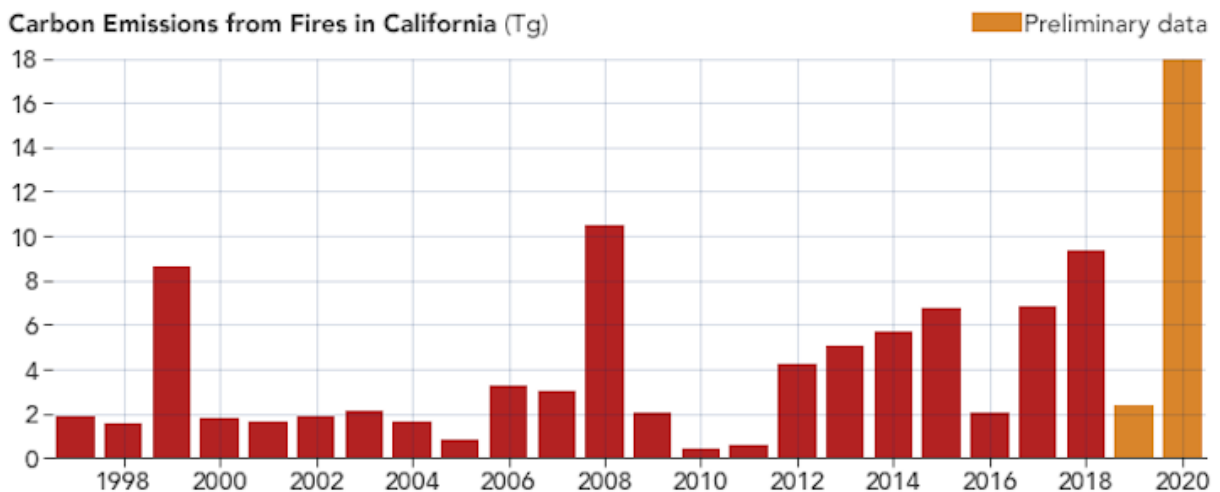
- ✓ **Wildfire Prevention**, and
- ✓ **Early Detection**, and
- ✓ **Automated Alerts**, and
- ✓ **Situational Awareness** During Events
- Investment/Customer/Month = **< \$4.00**
- Sensors Required = **409,000**
- Full Deployment = **~2 years**
- Monitoring Value = **(24x7) x (365) x (10yrs)**

GRIDWIDE FIRE-NET Investment: < 6% of just ONE Wildfire Event
AND Saves \$ Billions by Averting Disasters, Lessening Costs, and Reducing Impacts For Years

By September, California’s 2020 wildfires had spewed an estimated 91+ Million Metric Tons of Carbon Dioxide emissions, per the Global Fire Emissions Database. **By the conclusion of 2020,**

over 4.1 million acres burned causing an estimated 112+ Million Metric Tons of Carbon Dioxide emissions to be released via California wildfires alone. These staggering emissions equate to nearly 2x the annual emissions of California’s 15+ Million automobiles.

All wildfires negatively offset our valiant efforts to effect climate change, and to reduce Greenhouse Gas emissions (i.e., GHG); commonly sought via clean energy adoption, electric vehicles, rooftop solar homes, etc. As California’s 2020 data reveals, **wildfires alone can substantially negate our GHG emissions reduction efforts.** If our mantra is to truly address Climate Change, then wildfire mitigation must be pursued via deliberate, aggressive intervention efforts. **GRIDWIDE FIRE-NET presents a compelling opportunity to reduce harmful, perennial wildfire GHG emissions.**



California’s yearly carbon emissions from fires

Chart by NASA

Clearly, electricity operators require new technologies and funding support to ensure safe and reliable service; while also helping to protect their local communities and the surrounding environment. Asset-induced fires and wildfires validate this need annually.



GRIDWIDE FIRE-NET sensors to be deployed on Distribution Transformers

Whether grid asset failure induced, weather induced (e.g., lightning strikes, Public Safety Power Shutoffs), or manmade (e.g., arson, accidental), **painful fire impacts and related electricity service interruptions are rising**. Without question, we need game-changing solutions now.

Every wildfire season brings forth months of fear, devastation, inconvenience, costs, etc. And the GRIDWIDE FIRE-NET solution introduces a novel approach to reducing this perennial problem.

Summary

GRIDWIDE FIRE-NET presents a first-ever “Always-On” outdoor monitoring and auto alerts defense solution. By leveraging existing overhead distribution transformers, versatile intra-grid sensors are rapidly installed, forming a comprehensive fire mitigation and public safety network; continually standing guard throughout communities, **for mere dollars per month per customer.**

The result is an **overarching community-wide monitoring canopy** that uniquely delivers:



- ✓ Early Detection, and
- ✓ Automated Alerts, and
- ✓ Prevention Capabilities, and
- ✓ Situational Awareness

Smoke, Fire, Ambient Temperature, Humidity
Downed Conductors, High-Risk Assets, Grid-Related Concerns

One Solution... Multiple Unique Values...

Achieving Fire Mitigation AND Public Safety Event Protection

GRIDWIDE FIRE-NET[™] presents a “game-changing” fire mitigation and public safety defense solution that will simultaneously benefit all stakeholders and our environment, while further strengthening the dedicated community-centric commitment provided by our valued grid operators.

About GRID20/20 Inc.

GRID20/20 is a leading Distribution Transformer Monitoring provider possessing patented intra-grid sensors that reveal unique, accurate, granular, timely information from within electricity distribution grids. The versatility of GRID20/20's Advanced Transformer Infrastructure (ATI) solution creates a myriad of operational and public safety gains for utility operators, and now first responders. The growing list of value propositions yielded by GRID20/20 includes improved DER integration, Greenhouse Gas Reduction, Outage Reduction, Improved Reliability, Accelerated Outage Restoration, Loss Identification, Energy Purchase Cost Reduction opportunity, Asset Load information, Increased Metered Revenues, Downed Conductor Detection, Environmental Protection, and Fire Mitigation capability. GRIDWIDE FIRE-NET represents the company's newest fire mitigation and public safety event solution.

GRID20/20 presents a globally relevant monitoring solution to address persistent distribution grid management challenges, grid and non-grid induced fire mitigation needs, and public safety interests.

For more information visit www.grid2020.com.