



# Cyber Sciences, Inc.

Taking the Guesswork Out of Critical Power Loss  
Reconstruction and Restoration

[www.cyber-sciences.com](http://www.cyber-sciences.com)

**CYBER SCIENCES™**

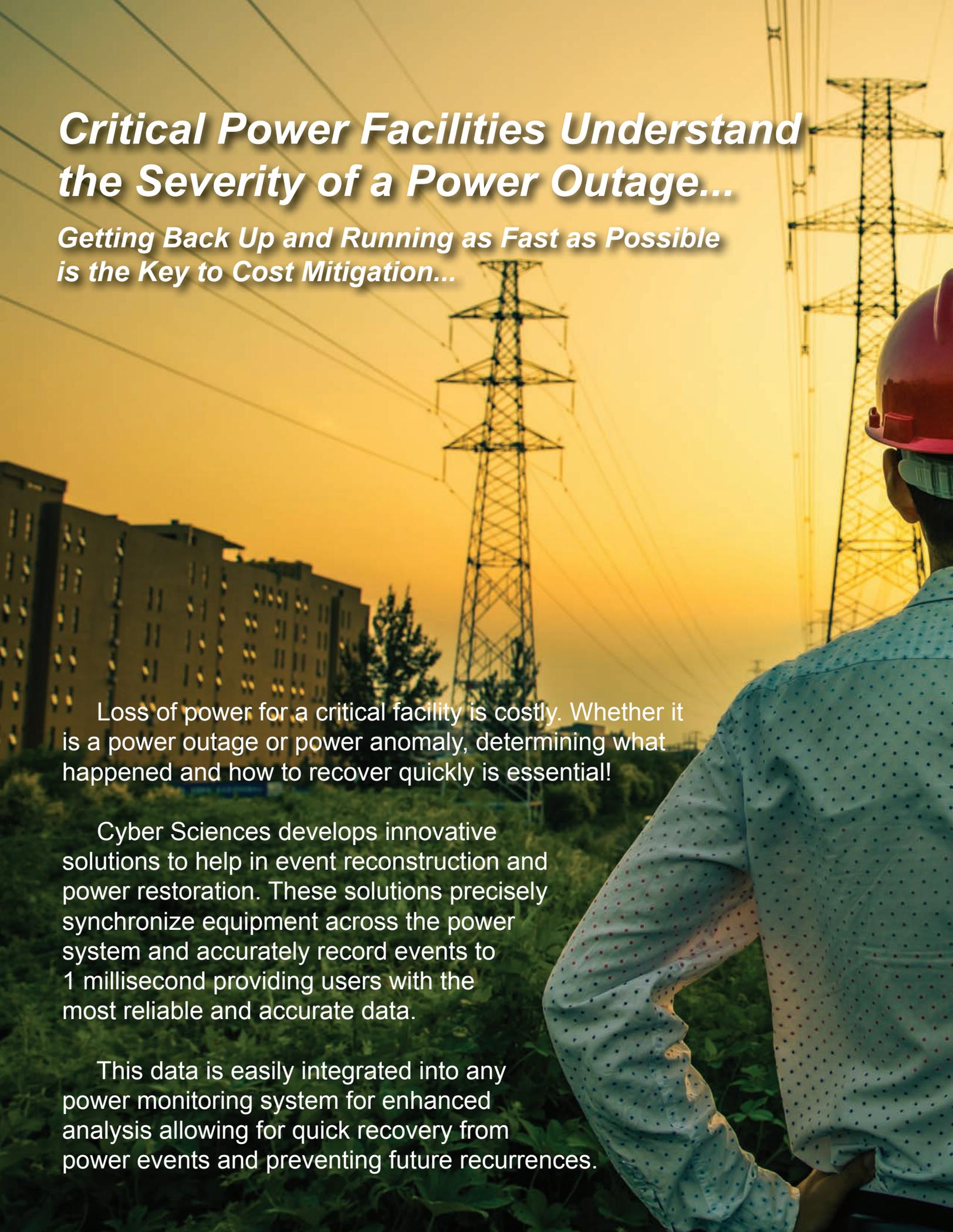
# ***Critical Power Facilities Understand the Severity of a Power Outage...***

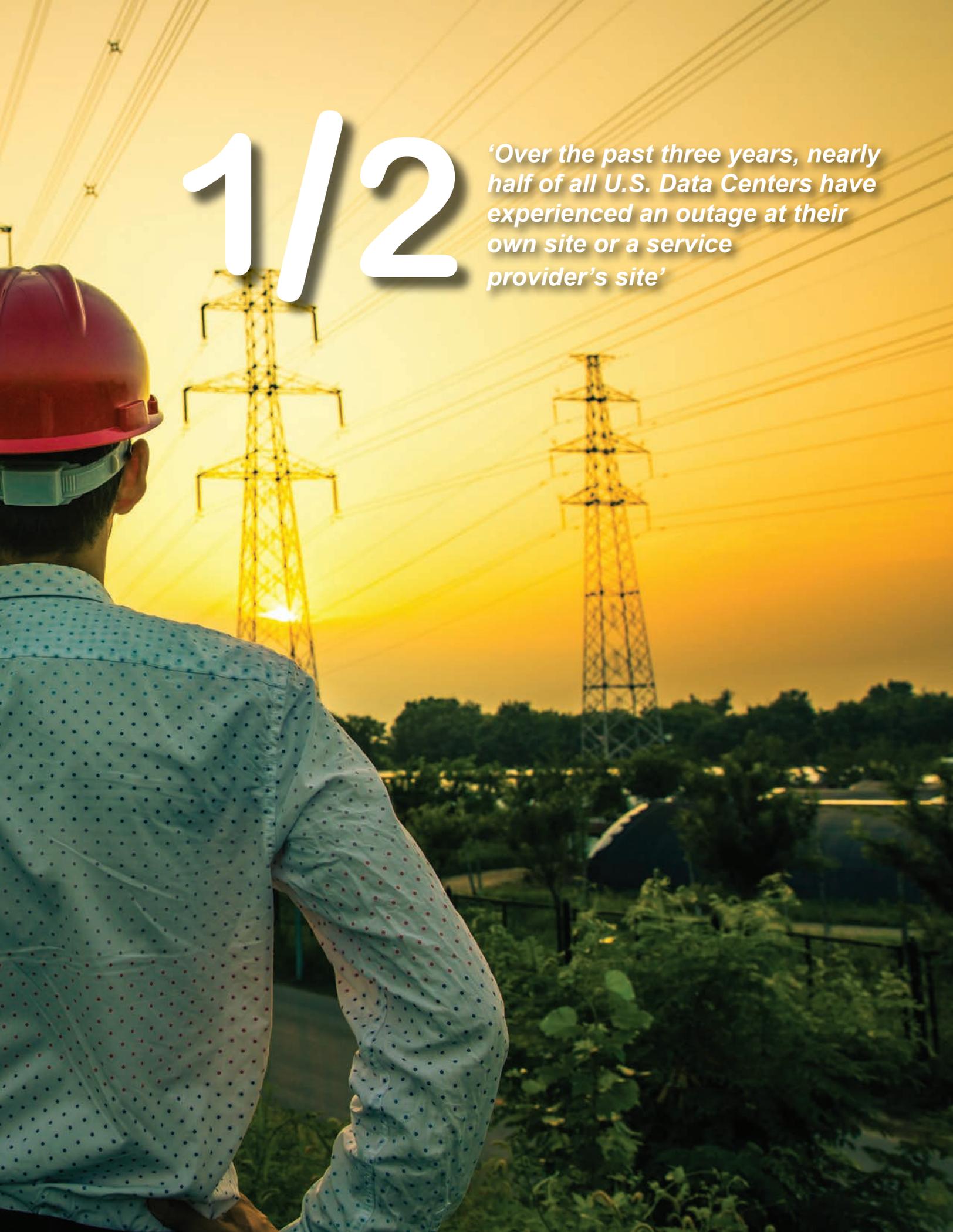
***Getting Back Up and Running as Fast as Possible  
is the Key to Cost Mitigation...***

Loss of power for a critical facility is costly. Whether it is a power outage or power anomaly, determining what happened and how to recover quickly is essential!

Cyber Sciences develops innovative solutions to help in event reconstruction and power restoration. These solutions precisely synchronize equipment across the power system and accurately record events to 1 millisecond providing users with the most reliable and accurate data.

This data is easily integrated into any power monitoring system for enhanced analysis allowing for quick recovery from power events and preventing future recurrences.





1/2

*'Over the past three years, nearly half of all U.S. Data Centers have experienced an outage at their own site or a service provider's site'*

A server room with rows of server racks under blue lighting. The racks are filled with server components, and the room has a modern, industrial feel with exposed ceiling pipes and lights. A large window on the right side shows a bright, sunny day with a green landscape.

# DATA CENTERS

Electrical power distribution systems designed for data centers are complex. To achieve near flawless uptime, power systems are designed with multiple sources and redundancy. Data center electrical power monitoring systems (EPMS) must provide pertinent data about normal operations as well as forensics when abnormal conditions are detected.

Critical facilities that depend on constant power can benefit from the addition of Cyber Sciences Sequence of Events Recorders (SERs) by capturing the most accurate data available for power loss recovery and post event analysis.



# \$1M

*'Nearly 40% of all U.S. Data Centers have reported total costs associated with power loss events totaling \$100k to \$1M'*

In addition, SERs can provide valuable data when testing emergency power systems for operations and reliability. Our SERs time sync connected electrical components and time stamp events to 1 millisecond, helping to ensure the accuracy, efficiency and safety of normal and emergency power systems.

# HEALTHCARE

Healthcare facilities are an integral part of our society. In the healthcare industry, always-on power is key for patient safety and acute care. When the loss of power can result in patient injury or loss of life, failure to provide reliable power is not an option.

For patient safety, hospitals require reliable power 24 hours a day, 7 days a week. Electrical power distribution systems designed for hospitals are complex, especially the Emergency Power Supply System (EPSS). With ever increasing disruptions in utility power, confidence in the Emergency Power Supply System's ability to move from normal to stand-by power is essential.



# 18%

*'18% of the Healthcare Industry experiences an outage at least once per month'*

Critical healthcare facilities are required to conform to the requirements of the NFPA 110 Standard which calls for periodic maintenance of the EPSS as well as testing generators, transfer switches, batteries, and breakers serving the electric utility and emergency power supplies. Regular testing of these systems increases the probability of identifying reliability issues and reduces risks of losing emergency power.

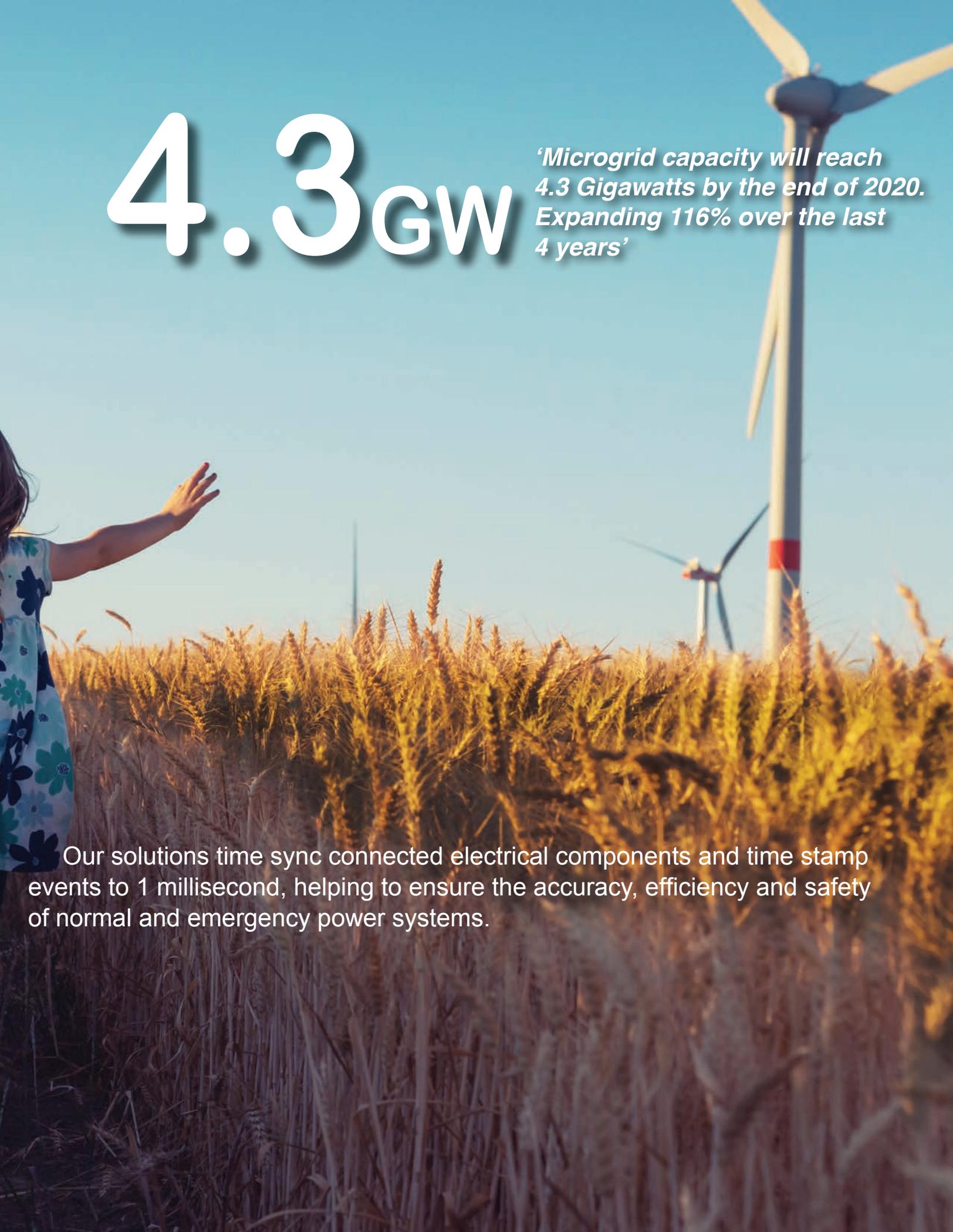
The Cyber Sciences Sequence of Events Recorder enables any remote monitoring system used for automated testing to deliver the most precise data for evaluation and assessment of the Emergency Power Supply System.

A woman with long brown hair, wearing a white dress with large blue and green floral patterns, stands in a field of tall, golden-brown grass. She is seen from the back, with her right arm extended towards the horizon. In the background, a white wind turbine is visible against a clear, light blue sky. The scene is illuminated by the warm, golden light of a sunset or sunrise.

# MICROGRIDS AND ALTERNATIVE ENERGY

Microgrids are electrical power distribution systems specifically designed to operate interdependently with the electric power grid. Often these include alternative energy sources such as wind and solar power, with storage batteries and means to ensure system stability while connected to the grid, or in 'island' mode.

These complex power networks require challenging engineering and dynamic controls. To ensure reliable power, root-cause analysis is needed to understand the sequence of events, not only for disaster recovery, but to diagnose any abnormal condition, long before these lead to instability or outages.



# 4.3GW

*'Microgrid capacity will reach  
4.3 Gigawatts by the end of 2020.  
Expanding 116% over the last  
4 years'*

Our solutions time sync connected electrical components and time stamp events to 1 millisecond, helping to ensure the accuracy, efficiency and safety of normal and emergency power systems.

# OUR SOLUTIONS...

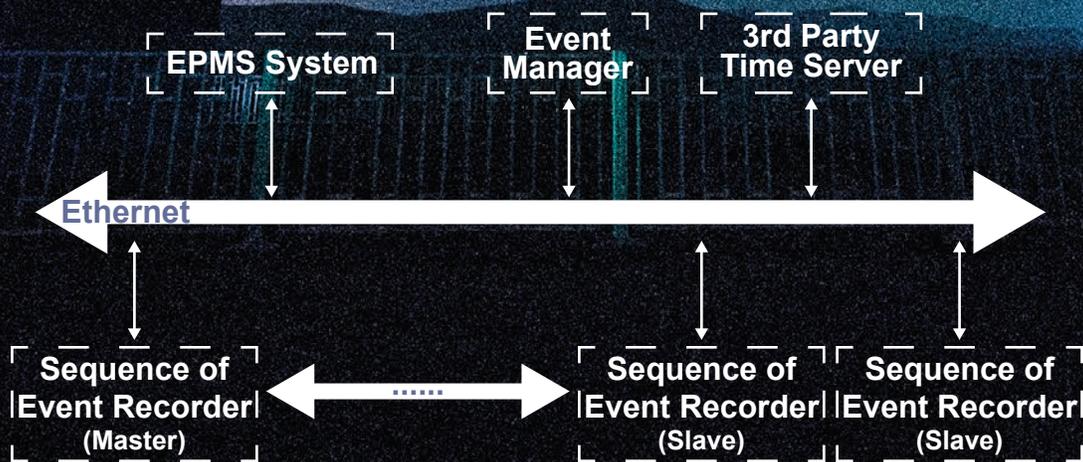
Cyber Sciences is the global leader in precision time solutions for critical power facilities, including data centers, hospitals, industrial applications, universities, airports, microgrids and alternative energy.

All Cyber Sciences products are manufactured and designed to meet global standards, with key applications including sequence of events recording (SER) and GPS time synchronization. We help facility managers and engineers to ensure the reliability, efficiency and safety of their normal and emergency power systems.

Know what happened and when  
to **1 ms**

Events happen. Reduce your risk.

One-Line Diagram



## CyTime Sequence of Events Recorder



CyTime™ Sequence of Events Recorder (SER) models SER-3200 and SER-2408 record status changes time-stamped to 1 ms. Time synchronization is achieved via PTP (IEEE 1588), IRIG-B, DCF77, NTP, Modbus TCP or an RS-485 signal from another SER. An embedded web server allows setup over a network using a standard browser, plus easy access to all events, status and even custom pages.

Sequence of Events Recorder

## CyTime Event Manager

The CyTime™ Event Manager provides the ability to view and monitor I/O status from multiple Sequence of Event Recorders (SERs) in one easy to use web interface. This helps to provide an overall view of the diagnostic health of the critical power system.

This intuitive, simple to use tool lets users take better advantage of precision time recordings of status changes in electrical equipment. Where critical power applications are concerned, the Event Manager helps easily identify I/O status and speed up troubleshooting efforts when an event has occurred.

The Event Manager also allows the consolidation of events from all downstream SERs pertaining to a single incident, providing fast and powerful event reconstruction analysis. A valuable resource to help identify power loss events quicker, saving time and money for power restoration in critical power applications.



Event Manager



Satellite Time Reference

## GPS Time Sync - Satellite Time Reference

The STR-100 Satellite Time Reference is a microprocessor-based device that accepts GPS time signals from a smart antenna or receiver and outputs a time synchronization signal to power system devices for sequence of events recording (SER) applications.

## 2 Wire to 4 Wire Converter

Ensure connectivity of RS-485 devices with the CNV-100, which enables interoperability of RS485 2-wire and 4-wire multi-point data communication networks. The CNV-100 connects 2-wire devices to 4-wire systems or 4-wire devices to 2-wire systems. LEDs flash to confirm data transmit/receive at both 2-wire and 4-wire sides. The CNV-100 can be used with any protocol that adheres to the RS-485 standard operating at baud rates of 9600, 19.2k or 38.4k bps.



RS-485 Connectivity

## Accessories and Services

Cyber Sciences offers services and 3rd-party accessories to facilitate GPS time-sync and sequence of events recording. We want your project to go smoothly. Ask us to include 3rd party products in your comprehensive quote!



*Cyber Sciences, the world leader in critical power loss event recording.*

For more information, visit:

[www.cyber-sciences.com](http://www.cyber-sciences.com)

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