

# *Remote Generator Monitoring for Wireless Infrastructure Sites*



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# Generator Monitoring for Wireless Infrastructure Sites

## Standby Power at Wireless Infrastructure Sites

Ensuring reliable power at wireless infrastructure sites<sup>1</sup> is crucial. So many mission-critical businesses—from data centers to hospitals to financial institutions—rely on wireless infrastructure to function in today's wireless world. And beyond mission-critical facilities, a growing number of businesses that rely on wireless infrastructure sites find even brief outages unacceptable. Any disruptions in service costs network operators time, money and sometimes customers.

The increased demands consumers have put on wireless networks – combined with an aging electrical grid and increasingly erratic weather events – means that the impact of power outages has grown significantly in recent years and will continue to do so.

It is easy to see why the standby and emergency power business has grown in recent years and become so critical across businesses. But it doesn't stop there. Generators themselves are susceptible to failure. They require regular running, testing and maintenance, or else there is a significant chance they may not work when you need them most. With so much at stake and invested in backup power systems, monitoring and maintenance of these backup systems has become crucial.

*This white paper will explain how wireless infrastructure operators can greatly increase the reliability of on-site standby power generation systems by utilizing remote generator monitoring.*

## Introduction to Remote Generator Monitoring

Remote monitoring means that the monitoring is done off-site or away from the physical location of the generator being monitored. To achieve remote monitoring, a generator monitoring device is connected to the generator. The monitoring device collects data from the generator (e.g., generator run and generator stop) and then transmits the data to a central location, where the data is immediately processed and then sent to preset recipients. There is typically an upfront charge for the equipment, and a recurring charge for the ongoing monitoring service.

Generator monitoring will provide numerous benefits to both you and your customers, who count on your generators for reliable, continuous power:

- **Instant Alerts.** Generator monitoring devices provide instant alerts of generator activity. When seconds count, your technical staff will know if there is a problem right away.
- **Peace of Mind.** Rest assured knowing that your generators are being monitored 24/7/365.
- **Improved Reliability.** Monitoring allows potential generator problems to be addressed proactively, reducing incidents of failure during power loss.
- **Investment Protection.** Continuous monitoring means greater investment protection for your generators and everything they power during an outage.
- **Customized Reports.** Reports tailored to your needs for management functions, third-party reporting to government or oversight bodies, etc.
- **Increase the Bottom Line.** You can accurately plan maintenance needs using information from the monitoring device and schedule maintenance tasks more efficiently.
- **Improve Customer Satisfaction.** By reducing incidents of generator failure during power loss by proactively addressing potential generator problems, customer satisfaction will improve greatly.

# Generator Monitoring for Wireless Infrastructure Sites

*Modern onsite power generators are extremely complex, and even a minor failure of any component of their mechanical, electrical or electronic systems can prevent them from working when a utility failure occurs. And, while generators are more reliable than ever before, they still “won’t work something like 20%-to-30% of the time.”*

Arshad Mansoor  
Senior Vice President  
Electric Power Research Institute

## Common Causes of Generator Failures

- Battery failure
- Insufficient fuel supply
- Lack of / poor maintenance
- User errors, such as controller left in OFF mode / Not in Auto
- Blown fuse / tripped circuit breaker
- Design flaws, such as inadequate battery float chargers
- Manufacturing defects
- Mistakes made during installation

## Reduce or Eliminate Failures with Generator Monitoring

By detecting and monitoring just five basic generator conditions, 95% of all generator failures can be prevented:

1. Failure to Exercise
2. Not in Auto
3. Common Fault
4. Generator Run
5. Generator Stop

By accurately detecting and monitoring Generator Run and Generator Stop conditions, one or more Virtual Hour Meters can provide actionable data to allow for the optimal scheduling of preventative maintenance, refueling, etc., while also sending alerts if the generator fails to exercise within a pre-determined timeframe.

## Generator Monitoring for Wireless Infrastructure Sites

*"Since installing CRN Cellular Generator Monitors on each of our generators at our sites in 2014, we have been alerted to potential generator problems in advance of failures. This invaluable information has allowed us to take the necessary corrective action, and we have not had a single customer impacting incident because of CRN generator monitoring."*

Bill Davies  
Communications Leasing, Inc.

### CRN Cellular Generator Monitor

The CRN Cellular Generator Monitor is an extremely cost-effective monitoring solution suitable for the smallest residential generator, to large industrial generators, and everything in between. It is universal with all generators, regardless of brand, make or model. Users appreciate the simple and fast installation (typically under 30 minutes) and many find that it is so cost-effective they can standardize on the CRN Cellular Generator Monitor for every generator they install or service.

Every CRN Generator Monitor is shipped with all parts necessary for installation, and mounts directly to the generator enclosure. The user controls the flow of information, and decides which recipients will receive alerts, preventing irrelevant alerts and unnecessary service calls. In addition to real-time alerts, users can receive weekly exception reports, so they know the status of each generator, maximizing service and maintenance efficiency.

<sup>1</sup> As used herein, "wireless infrastructure sites" include any terrestrial sites utilized for wireless communications, including but not limited to cell sites, towers, rooftop sites, small cells, backhaul sites, etc.

**CRN Wireless** is an international provider of wireless products and services that facilitate the communication and monitoring of data and alarm signals. For over 30 years, our products and services have been used in a variety of applications across a broad range of industries including security, generator monitoring, life safety and industrial monitoring. CRN products have been installed in over 20 countries across 5 continents. From monitoring devices to turnkey wireless networks and fully customized products, we offer a broad range of wireless monitoring solutions.