

Top 20 Critical Access Hospital Eliminates Unplanned Outages



A Vertiv Case Study



Organization

Linton Hospital is a 14-bed, 27,000 sq. ft. critical access hospital offering 24-hour emergency services. The hospital also has three affiliated clinics, which offer a wide variety of medical services to the residents of Emmons County, North Dakota, and Campbell County, South Dakota.

The National Rural Health Association recognized the non-profit hospital as a Top 100 critical access hospital in 2018 and 2019 and as a Top 20 critical access hospital in 2019.

The hospital currently employs approximately 100 staff and is one of the largest employers in its community.

Services include:

- Nursing Service
- Trauma
- Advanced Cardiac Life Support
- Pediatric Advanced Life Support
- Surgery
- Operating Room
- Advanced Life Support
- Ambulance Service
- Physical Therapy
- Radiology
- Lab
- Administrative Services

Background

When the main power source to a hospital is interrupted, it is the job of the uninterruptible power supply (UPS) to provide temporary power to critical equipment until the load can be switched to the alternative power source. At Linton Hospital, the IT director had deployed several UPS units to provide backup power protection for the hospital's critical applications, including the electronic health record (EHR) system, lab equipment, telemedicine connections, and telephone and security systems. However, because the UPS units were not synchronizing to the generator when utility power was lost, these systems were only supported for the duration of the UPS units' battery power. As a result, the facility experienced several disruptive outages over the past few years.

In search of a better solution, the IT director turned to High Point Networks, a value-added IT reseller, and Data Center Systems, a local Vertiv partner, to help troubleshoot the issues and provide a long-term backup power solution.

Case Summary

Location: Linton, North Dakota

Critical Needs: To ensure uninterrupted access to lifesaving healthcare data and equipment, Linton Hospital needed UPS units it could rely on to provide seamless backup power during both planned and unplanned outages. The IT director also wanted a solution that would minimize the effort required to install, manage, and maintain the units throughout their lifecycle. After the existing UPS units failed several times the IT director made the decision to replace all the units with a technology better suited to his applications.

Vertiv Solutions: Working with his trusted IT reseller, High Point Networks, and local Vertiv partner, Data Center Systems, the Linton Hospital IT Director replaced all the single-phase UPS units in the facility with the Vertiv™ Liebert® GXT UPS series. The GXT units are double-conversion true online technology, providing the highest level of power protection available. The units deliver better power conditioning and synchronizing technology, allowing them to work seamlessly with the hospital's generator to ensure 24x7 access to clean, reliable power for the hospital's most critical systems and equipment.

Results:

- Eliminated unplanned outages caused by UPS failure.
- Helped ensure around-the-clock availability of lifesaving systems and equipment.
- Simplified installation, management, and maintenance of the hospital's backup power solution.
- Provided additional protection for critical IT equipment with built-in temperature and humidity monitoring.
- Extended UPS service life and battery run time.
- Offered peace of mind and convenience through access to on-site service support.

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Solution

Switching to a generator-friendly technology supports critical system reliability

Linton Hospital IT Director Ross Mattheis was enjoying dinner, 60 miles away from his hospital, when he received an emergency call from a nurse who couldn't access the hospital's EHR system. It wasn't the first time something like this had happened. The problem pointed to a major glitch with the UPS units the hospital was using to support its IT equipment, lab equipment, and telemedicine capabilities. Anytime the main source of power to the hospital dropped too low or was lost, the essential power load would transfer to the UPS. Ideally, the UPS would provide short-term interim backup power until the generator could start up and transfer the load. But at Linton Hospital, the power load was failing to transfer to the generator. Instead, it remained on UPS power. Unfortunately, if the main power didn't return before the UPS batteries ran out, the hospital would lose access to its critical equipment and systems.

As a result, hospital staff had fallen into the habit of unplugging servers and equipment connected to the UPS and connecting them to other outlets supported by the generator. While this provided an immediate fix, if the plugs were never switched back, it left critical equipment without UPS protection when the next outage occurred.

In addition, the problem was contributing to a significant amount of extra work for Mattheis. To prevent power surges, he would have to manually shut down sensitive IT and lab equipment before each scheduled generator test. To top it off, because the UPS units were regularly expending their battery power, they were failing long before their life expectancy, adding even more to the facility's costs, workload, and headaches.

Knowing there must be a better solution, Mattheis asked his partner Dustin Leingang at High Point Networks for help pinpointing the problem. High Point brought in the experts at Data Center Systems, a local Vertiv partner, to help with troubleshooting. The team determined that the issues stemmed from a synchronization problem between the current UPS technology and the hospital's generator. The compatibility issue kept the loads from transferring successfully.

The team suggested that the hospital try a more generator-friendly technology with better power conditioning capabilities — the Vertiv™ Liebert® GXT UPS series. These units are double-conversion true online technology designed to work seamlessly with generators while also offering continuous power conditioning to ensure clean, stable power supply to sensitive equipment. The units have a wide input voltage tolerance, allowing them to handle large fluctuations before transferring to battery power, which helps prevent unnecessary battery discharges and preserves the unit's useful life.

A better solution right out of the box

When Linton Hospital's new Liebert GXT UPS units arrived, Mattheis was immediately pleased with the small details that made the installation process easy. He was able to quickly unpack and move the units using the straps provided in the box. Mattheis also chose to take advantage of the UPS units' built-in temperature and humidity monitoring sensors. He was able to easily configure those features using a plug-and-play unity communication card, which made the entire installation process very straight forward.

The real benefit came once the units were up and running. In addition to resolving the generator synchronization and power quality issues, the new UPS units, through enhanced monitoring capabilities, revealed a ground fault error that was likely contributing to premature battery failure. This insight facilitated the diagnosis of a facility electrical ground issue, which may otherwise not have been caught. The facility's electrical contractors were able to quickly correct this issue.

Overall, Mattheis has gained peace of mind knowing his hospital now has a truly uninterruptible power supply in place. He also appreciates knowing on-site support is available if and when he needs it through Vertiv's local partner, Data Center Systems, or Vertiv's nationwide network of factory-trained service technicians.

"The new Vertiv™ Liebert® GXT UPS units just work. I no longer have to worry that my equipment might go out every time the generator kicks in. That peace of mind, plus knowing I have access to on-site support if I need it, has made the switch a great experience for our facility."

- ROSS MATTHEIS, IT DIRECTOR/PARAMEDIC, LINTON HOSPITAL

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