Case Study:

Bluebird Underground Data Center
Missouri, USA

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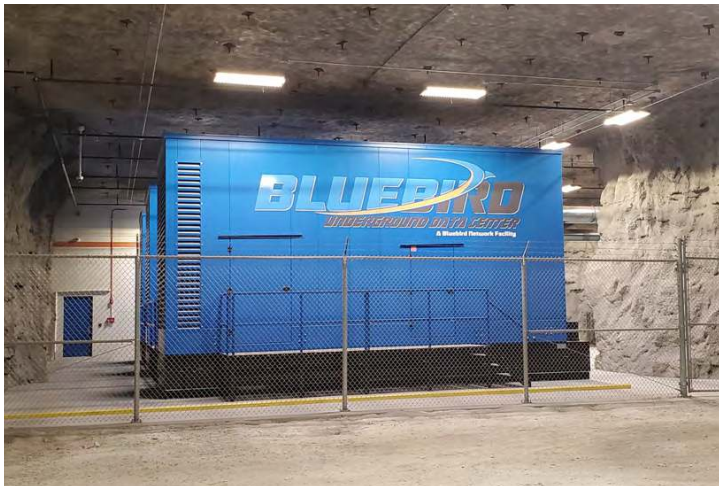
Life Is On Schneider Electric

CASE SUMMARY

- The Expansion of an SOC 2, underground, collocation data center required the addition of generation capacity and the expansion of its existing critical power system.
- Installation and commissioning needed to occur without unplanned service disruptions in a facility that provides a 100 percent uptime guarantee to its IT customers.
- ASCO commissioned an expanded paralleling switchgear system and transfer switches that have provided outstanding performance.



One of the three 2-MW gensets that backup the Bluebird Underground Data Center

THE SITUATION

When someone says, "Data Center", professionals usually think "backup systems". When a facility lies on the edge of the USA's Tornado Alley, yet provides a 100 percent uptime guarantee, the term "emergency power" takes on fresh importance.

Bluebird Network operates an 80,000 square foot (7400+ square meter) data center and an associated fiber network in the Midwest. Its customers collocate their data processing and information technology equipment in Bluebird's facility. Bluebird supplies the space, power, cooling, connectivity, security, and even the technicians needed to operate the equipment at the highest levels of availability. The *SOC2 Type 2* facility relies on robust backup infrastructure, including an emergency power system, for avoiding equipment downtime.[1]

And about those tornados? The data center is located 85 feet underground, tucked securely away from surface storms in a limestone formation that also offers protection from seismic activity.

In 2019, Bluebird elected to expand the facility and needed to upgrade the backup power system. Working through Olsson Engineering and Schneider Electric, Bluebird was directed to ASCO Power Technologies for its expertise in emergency power equipment and solutions.

The scope of work required replacing the facility's two aging 2-megawatt generator sets and adding a third. The existing paralleling switchgear would be retained, but would be expanded to accommodate the third generator, and automatic transfer switches would be added or replaced. The system would also connect two separate utility feeds. Some of the challenges included:

- completing the work within the unique underground structure
- making old and new equipment from different manufacturers work together
- bringing it all online without impacting the IT operations of its collocated customers

[1] *SOC2 Type 2* facilities have been independently audited to verify that data security practices are in place and evaluate how well they work over time.

THE SOLUTION

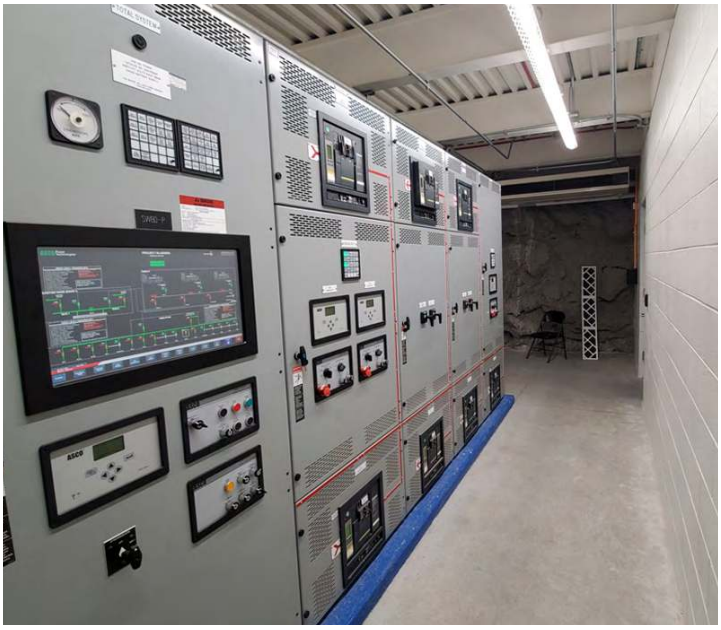
First, ASCO focused on Bluebird's needs for, and concerns about, the planned data center upgrades. ASCO provided technical support through subsequent design iterations until every one of Bluebird's needs and concerns were resolved. After a technical approach was confirmed, ASCO expertly designed switchgear to expand the existing system.

Second, ASCO applied decades of paralleling switchgear design and commissioning experience to the development of controls, event sequences, and programs that would optimize critical power reliability and function. At the same time, ASCO developed interfaces that enabled the switchgear system to communicate with and control power equipment from different manufacturers, including a battery backup system, to supply backup power whenever needed.

Third, ASCO spent scores of hours working with the project's stakeholders to develop a thorough Method of Procedure for installation, startup, and commissioning of the upgraded power system. The work would proceed in four steps in two six-hour windows.

THE OUTCOME

During construction, a general contractor pulled conductors and electricians worked with ASCO technicians to install and connect the new power equipment. In the words of Bluebird's Facilities Manager Greg Cantrell, "It was 100 percent successful!" Thorough testing and commissioning showed that all of the switchgear and transfer switches worked exactly as designed, and was brought online without unplanned outages. Interestingly, commissioning activities found that a distribution breaker in the original switchgear required service, a problem that was soon corrected, and one that also shows the value of stringent commissioning procedures. Since the upgrade, Bluebird has experienced power security provided by its three generators, three utility feeds, and upgraded switchgear and equipment. Bluebird also continues to use the ASCO service team to maintain its critical power equipment.



One of the three 2-MW gensets that backup the Bluebird Underground Data Center

When asked how it has all worked out, Greg said, "It's been flawless. We test with live load every month. I'm more at ease every time we switch the operating loads to backup power." Asked about the value that ASCO brings to Bluebird's mission, Greg said, "Reliability and trust. A great reputation. Switchgear programming expertise." And what impresses him most? "The ASCO team's timely customer service. At Bluebird, we always say that 'the customer is always first.' ASCO has treated Bluebird that same way."

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ASCO Power Technologies™

ABOUT BLUEBIRD NETWORK

Since 1999, Bluebird Network has provided internet and transport services via its fiber infrastructure to Carriers and Enterprises in Missouri, Illinois, Kansas, Iowa, and surrounding states. In 2014, the firm added the Bluebird Underground Data Center facility to its network, and in 2021 the firm added the Bluebird Quad Cities Data Center. Today, Bluebird operates over 9,800 fiber route miles of high-speed broadband and fiber-optic connections with over 60,000 on-net and near-net buildings and 151 Point of Presence sites spanning the Midwestern USA. To learn more, visit Bluebirdnetwork.com.

ABOUT ASCO POWER TECHNOLOGIES

ASCO Power Technologies has provided power reliability solutions for more than 125 years. The firm designs, manufactures, services, and supports automatic transfer switches, power control equipment, load banks, and critical power management systems. ASCO products serve mission-critical functions in data centers, healthcare facilities, telecommunication networks, commercial buildings, and industrial operations. To learn more about any of ASCO's premium products and services, call (800) 800 ASCO (2726), email CustomerCare@Ascopower.com, or visit www.ascopower.com.

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