



Generation Engineering Relevant Experience

Switchgear Installation for Enhanced Reliability and Safety

Client: Cincinnati Zoo & Botanical Garden (CZBG)

Located in Cincinnati, Ohio, the switchgear installation project at the Cincinnati Zoo & Botanical Garden aimed to enhance energy reliability and safety. ENTRUST partnered with CZBG to implement advanced switchgear technology that allows grid isolation during outages, protects critical loads, and enables seamless integration of onsite solar arrays and a proposed battery energy storage system (BESS). These upgrades not only preserve the safety of the Zoo's animals, staff, and visitors but also position CZBG as one of the most sustainable zoos in America.

ENTRUST provided engineering, programming, and commissioning services to address CZBG's unique challenges. The team designed and programmed automation systems using SEL 751 relays, 3530 RTAC, and other advanced technologies, centralizing real-time monitoring and control for all feeders and generation assets. This system allows for precise tracking of metering, voltage-current, and power factor, offering actionable insights to optimize feeder performance and transformer efficiency. Additionally, it provides a strong foundation for future SCADA integration, ensuring seamless connectivity and even greater system oversight.

ENTRUST also addressed gaps in existing documentation by conducting thorough root cause analyses and creating updated records to ensure operational clarity. Solutions were tailored to fit CZBG's unique challenges, including the limited shutdown windows, the need for back-up power to maintain critical habitat conditions, and the proximity of the switchgear house to the Wolf and petting zoo exhibits, which required careful planning to mitigate disruptions and ensure safety. This ensured reliability and continuity for the Zoo's operations.

Key Achievements

- Installed switchgear enabling grid isolation, black start capabilities, and solar array integration.
- Provided centralized data platforms to track power usage, voltage-current, and power factor, enabling proactive corrections and system optimization.
- Created the groundwork for SCADA integration, offering long-term scalability and improved system management.
- Strengthened CZBG's green initiatives with innovative energy solutions.

With ENTRUST's customized approach, CZBG now controls its energy system with efficiency.

Equipment Health Assessments for Improved Fleet Reliability

Client: Nova Scotia Power

Located in Nova Scotia, Canada, the Equipment Health and Condition Assessments project for Nova Scotia Power focused on enhancing the reliability and efficiency of its thermal generation fleet. ENTRUST partnered with Nova Scotia Power to support the development of an asset management and condition-based maintenance program, identifying key risks and providing actionable insights. This proactive approach ensures long-term operational stability, helping Nova Scotia Power deliver reliable energy to its customers.

ENTRUST conducted health assessments across Nova Scotia Power's thermal generation fleet, leveraging its extensive project database and decades of experience with similar systems. The team provided weighted risk ratings for equipment conditions, using available data and advanced engineering techniques to identify critical vulnerabilities. These ratings allowed Nova Scotia Power to prioritize maintenance and capital expenditures effectively, addressing issues before they could escalate into costly disruptions.

To overcome challenges with historical record inconsistencies, ENTRUST used its expertise and past design knowledge to assess current fleet conditions accurately. This approach led to the creation of an asset management program tailored to the unique needs of Nova Scotia Power's fleet.

Key Achievements

- Enhanced fleet reliability through a condition-based maintenance program that has sustained strong availability over 10+ years of implementation.
- Proactive risk management by delivering weighted risk ratings to prioritize key vulnerabilities, ensuring cost-effective and efficient fleet operations.
- Cost savings achieved by addressing fleet risks early, reducing expenditures associated with repairs and unplanned downtime.
- Integrating ENTRUST's unparalleled equipment expertise and extensive project database into Nova Scotia Power's operations for future readiness.

With ENTRUST's solutions, Nova Scotia Power has realized strong fleet performance, reduced risks, and cost savings, while setting a new standard for asset management.