A custom solution for updating stadium lighting controls to increase safety and leverage existing infrastructure

**Location:**
Central U.S.

**Segment:**
Education

**Problem:**
Older stadium lighting controls posed safety hazard and tight budget.

**Solution:**
Turnkey solution providing a customized pad-mounted NOVA recloser.

**Results:**
A solution delivering enhanced safety and environmental safety, on budget.

**Background**
A leading university, located in the central United States, had a decades-old lighting control system for its baseball and football stadiums. The university's service personnel were at risk as they were exposed to medium voltage whenever they had to turn the lights on and off for a game or practice session.

Over the years, there has been an enhanced focus on personnel safety and minimizing associated costs that occur as a result of potential mishaps. The university had an ongoing relationship with Eaton and when it was faced with such a hazardous situation, it reached out. Eaton served as a “one-stop-shop” and was ideally placed to provide a cost-effective and customized recloser solution that met the long-term requirements of the university.

**Challenge**
A key challenge was the fact that while the university was clear it wanted a solution to enhance the safety of service personnel, it did not have a concrete idea of what type of solution was required. In such a situation, only a company of Eaton’s stature—with its wide product portfolio, design experience and engineering expertise—could successfully deliver the project, as it required an in-depth understanding of the university’s immediate and future requirements.

Cost was a sensitive issue for the university; consequently, Eaton had to provide a solution that was not only best-in-class but also highly cost-efficient. This involved customization of the solution and using components such as switches and pad-mount gear that were more competitive cost-wise than traditional medium-voltage or vacuum-operated pad-mount gear.

An interesting challenge was that applications for stadium lighting reclosers aren’t common. Generally, lighting infrastructure is planned when the stadium is built, so any large-scale change or retrofit work would involve designing a solution that would fit correctly with the existing infrastructure without compromising the footprint and ease of access.

“The professionalism and ownership showcased by Eaton in the overall project was a value-add for the university and contributed to our overall project satisfaction.”

Education customer
Solution
To address the safety concerns of the university, Eaton’s engineering service division ideated and deliberated on what would be the best solution. Eaton’s design engineers looked at using alternatives such as medium-voltage switchgear, but ruled the out due to the cost and footprint modification that would be required.

Consequently, Eaton decided to go with a NOVA pad-mounted recloser with a Form 6 controller that can control the different lighting sections for the two stadiums, a solution that proved to be optimal in terms of leveraging the existing infrastructure. The enclosed medium voltage section has a customized control cabinet with six switches and two relays; each relay was set to handle three switches through which the lights in the stadium could be turned on and off when required.

The recloser has a fully integrated, twelve-gauge mild steel encloser with a solid dielectric installation with six vacuum bottles internal to it. Avoiding using oil is a key differentiating factor of Eaton’s NOVA reclosers that significantly enhance the environmentally friendly aspect of the solution. The incorporation of a mild steel enclosure, while not corrosion-resistant, also served to bring down the overall cost, thereby providing an economical solution for the university. The NOVA pad-mounted recloser’s cycloaliphatic-epoxy polymer encapsulation provided solid insulation that eliminated the need to monitor or maintain gas pressure or oil levels. The recloser solution was compact and lightweight and the control accessories enable further tailoring of the protective program to achieve system operating flexibility.

The professionalism and ownership showcased by Eaton in the overall project delivery also served to enhance customer satisfaction—a value-add for the university. A project manager from Eaton served as a single point of contact for the university and coordinated everything, from working with in-house CAD designers and field personnel and interacting with the subcontractor to shipping and installing the recloser solution.

Results
Starting from understanding the customer’s existing infrastructure to designing a customized recloser solution and deploying it in the field, Eaton took complete ownership for the successful delivery and execution of the project and provided the following benefits to the customer:

Enhanced safety
Eaton’s recloser solution resulted in a significant enhancement to the safety of service personnel who were responsible for controlling the lighting in the stadium. While the safety of the service personnel was the key sales value proposition, the university also benefited from the tangential benefit of enhanced intrinsic public safety. The probability of unintended access by a member of the general public was virtually eliminated because the solution was designed to be vandal resistant.

Cost-competitive solution and faster deployment
Considering that cost was an important criterion, Eaton iterated different designs to deliver a reasonably priced recloser solution. Eaton took complete ownership of the project; the solutions’ integration and inspection were done before its arrival on the customer’s site, resulting in faster deployment. The overall delivery of the solution took 8- to 12-weeks, which is faster than the industry average.

Environment friendly
Climate change is a key focus issue for university campuses across the United States; consequently, they place a high degree of emphasis on being environmentally friendly. Eaton’s solid dielectric recloser solution requires no oil, eliminating the possibility of hazardous events such as oil spills or leakages.

In summary, Eaton provided a customized, cost-competitive best-in-class recloser solution for a niche application that ensured the university’s concern for the safety of its service personnel and the general public were met.