Eagle Eye's BC-2500 Charger Keeps OPPD Substation Online After Lightning Strike

The Customer

Serving southeastern Nebraska residents and businesses since 1946, Omaha Public Power District (OPPD) is the 12th largest public power utility in the U.S., providing service to over 850,000 people in 13 counties.

The Challenge

Responding to an alarm for an AC failure reported at a local substation, OPPD technicians discovered the on-site charger and substation received an AC spike that tripped non-replaceable fuses and also took out one of the Intelligent Power Modules (iPMs). Caused by lightning, the charger was subjected to the inrush that got past both the primary feed breaker in the substation and the primary AC breaker on the charger. It happened so fast that the breakers did not trip.

Since this occurred the day before a major US holiday, there was concern that servicing the substation might require a crew to work overtime, a battery trailer and generator to be brought onsite, and a major cost to be incurred by both the utility and the owner of the substation.

The Eagle Eye Solution

Normally, when faced with an event such as this, a traditional SCR charger would have likely required replacement and certainly required the dispatch of a generator and battery trailer to switch over the substation. However, due to the redundancy of Eagle Eye's BC-2500 high-efficiency modular stationary charger, a single iPM power module was able to absorb the inrush, preserving the charger and keeping the substation online. In this application, where the station had a nominal load of 3-4 amps DC, even after losing one iPM, there were still seven more – with 28 amps of capacity left in the system – to avoid system failure.

The Implementation

Since the iPMs of the BC-2500 are hot swappable and fully redundant, they offer more than five times the capacity available, even with seven iPMs instead of eight for a nominal load. Essentially, technicians simply removed two screws, "hot swapped" a new iPM into place and put the screws back in to secure the iPM. The substation was never taken offline and never saw an interruption in service.

The Results

Since the BC-2500 Charger is designed with n+1 redundancy and hot-swappable power modules, OPPD was able to do the following:

- Keep the constant load up and running with the BC-2500 as the power supply
- Maintain the battery system on-charge, ready to take on any emergency situations
- Avoid a costly outage event due to the loss of the charging/power supply system
- Allow for only a single power module to be replaced

Ultimately, OPPD, service crews, and OPPD customers were happy to maintain 100% uptime throughout this event, saving OPPD time and costs, and protecting its outstanding reputation as a reliable service provider.