



Case Study

Southern U.S. Generation Customer

Emergency Control Cabinet Replacement

In May 2019, a leading power generation entity in the United States with approximately 39,000 MW of generation had a sudden failure of a GSU transformer. The customer found that their viable spare transformer had a failed control cabinet. This cabinet would need to be replaced before placing the spare GSU transformer into service.



Background

A NASS and NOMOS client specializing in competitive power generation sought help from the Voltyx Operating Companies during an emergency transformer failure. NASS has performed many projects at the client's various facilities throughout the years, making it easy to trust NOMOS and NASS with the cabinet replacement at the client's power plant.

The Challenge

In May 2019, a GSU transformer failed at one of the client's power plants. During this time, the viable spare/replacement GSU control cabinet was also not in working condition due to a previous incident. Therefore, the cabinet would need to be replaced immediately for this transformer to be used. In May 2019, average lead times were roughly ten weeks for cabinet replacements. Since NASS and NOMOS had a cabinet on hand, they could help this valued client with a short lead time while also displaying their capabilities.

For each day that passed without power being generated through this transformer, the client was facing a significant loss in revenue, roughly \$133,000 per day.

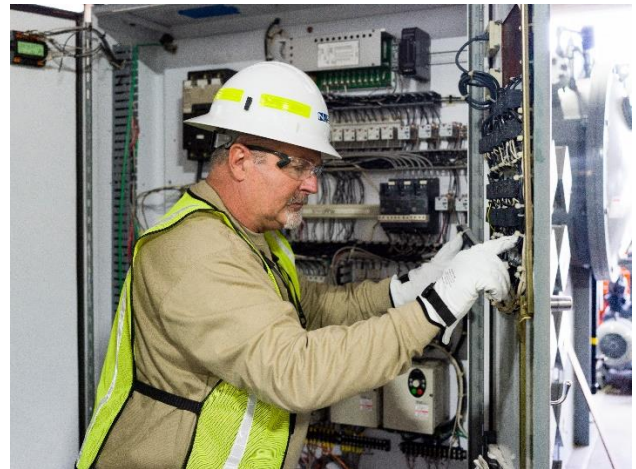
The Solution

Together, NASS and NOMOS stood out to this client because of the longstanding history of quality service and proficiency of work. In addition to those qualities, the Voltyx operating companies were able to locate a cabinet, which was on hand at the time of the client's need. In this instance, the solution was not only in the product but also in the engineering support, as this was critical to making the necessary modifications to the cabinet to meet the client's specific site and GSU needs.

The client representatives reviewed the Hurricane GSU control cabinet schematic and marked the items that need to be changed to meet the on-site needs. These changes consisted of both physical and schematic drawing changes, such as:

- Wire sizes to be changed, to match the existing transformer.
- Controls for 12 fans, nominal data as marked.
- Addition of a Buchholz relay alarm.
- Removal of the sudden pressure relay from the stocked cabinet.
- Modifications to meet the GSU Hot spot CT ratings
- Terminal block designations had to be cross referenced to the original drawings, so that an installer could land the original field wiring to the connection points.

With these modifications, the NASS & NOMOS team were able to replace the existing GSU control cabinet.



Conclusion

The client power plant was in an emergency situation- they needed immediate response for a GSU transformer replacement to avoid significant financial loss. Their spare GSU cabinet was not functional at the time of the original failing but luckily, NOMOS was quick to react by replacing the failed cabinet with a desperately needed replacement.

Once the replacement cabinet was identified, it was shipped within five days. Installation by our expert technicians was completed in the following weeks, resulting in a significantly lower financial loss than otherwise projected and got the client back on the grid at full capacity within four weeks. This short lead time saved the client an estimated \$5.6 million in lost revenue and increased the confidence in NASS and NOMOS for future projects.



Much of the control engineering work performed was to cross-reference all the external devices (gauges, breather, pressure relief device, fans, etc..) to connect at the spot where the current devices in the drawings connect. We supplied correct nameplates on the Seekirk annunciator and provided full wire markers to complete the job.

The Hurricane Series GSU control cabinet unit has the following features:

- Made of 11-gauge thick 304 Stainless steel with ANSI 70 grey powder coat paint applied on top (high quality cabinet)
- Runs off 480V 3ph.
- Can be coupled with our standard Hurricane automatic transfer switch box (100Amps) in case of need for dual power inputs
- Can accommodate 30+ fans with some pumps split through up to 4 groups
- Can accommodate 21 bushing CTs
- Can accommodate up to 24 alarms wired back to annunciator panels (Seekirk units, 2)
- Includes temperature controller for automatic cooling control, can be easily bypassed.
- Can supply 2-3 devices on the 240V 1ph if not supplied by substation (depends on amps value)
- Multiple 12 points empty terminal block for spare
- Built with easily accessible North American material

The most important aspect has been to confirm amps value of the fan groups, or of each fan. The current unit on shelf is equipped with 15 amps breaker per group.



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