SIEMENS

NC State University Expands Electrical Switchgear

Siemens' reliability and expertise proves trustworthy

Services for Energy

Situated in the capital city of Raleigh, North Carolina, more than 30,000 students roam the campus of North Carolina State University annually. Summers can be described as sweltering, with temperatures often climbing above the century mark and humidity levels equally uncomfortable. Average temperatures in the area range from around 80° F to 100° F May through September, creating the need for reliable relief from the outside elements.

In 2011, NCSU began expanding their air conditioning system and selected Siemens to install and test new switchgear that would increase load capacity for the system. With Siemens switchgear successfully utilized across campus, the university found it easy to choose Siemens products for their additional needs for various reasons.

History lesson

In 2005, Siemens was chosen to supply NCSU with three vertical sections of 5kV type GM switchgear and GMI circuit breakers, commonly used for protection and switching of transformers, motors, generators, capacitors, buses, distribution feeder lines and, in general, for protection of any medium-voltage power circuit. The switchgear structures and the draw-out vacuum circuit breakers were an integrated design, with dielectric, thermal and interruption integrity built directly into the design. The type GM 5 kV, metal-clad power switchgear assemblies utilized at NCSU uses a horizontal draw-out construction while taking advantage of the latest developments in vacuum interrupter technology. Up to two circuit breakers could be stacked in a single vertical section and auxiliary cells could be easily interchanged, enhancing the versatility of the design. This was the perfect solution for the Cates Avenue Steam Plant on campus. Taking these attributes into consideration, facility managers spent less time focused on maintenance or worrying about outages.

Going back to the future

Once again, in 2011, NCSU needed to expand their electrical switchgear to support a 2000 ton chiller installation. Realizing that the previously installed GM switchgear was phased out of production in 2008 as Siemens introduced GM-SG switchgear, the University needed a solution. NCSU learned that

Siemens T&D Service Solutions continued to produce the GM switchgear in Wendell, N.C., to support customers with legacy installations already in place and were able to meet the University's requirements.

Referring to the previous design and installation, Siemens custom fabricated the two additional circuit breakers stacked into one vertical cabinet to meet the University's needs. By providing the new equipment, just like the old equipment, NCSU was able to have complete breaker interchangeability. Simply stated, the University could easily substitute backup circuit breakers and avoided a transition section that would have taken up more space within their facility.

The equipment was added with ease and no additional training of personnel was required. Due to Siemens' extensive knowledge of the system in place and the requirements to upgrade, the project managers involved were able to coordinate an installation schedule that met the University's requirement for a minimal outage of the chilled water system. Ensuring reliability for the future, the equipment also met or exceeded the latest standards of ANSI, IEEE and NEMA.

Snapshot: North Carolina State University

- Established: 1887
- Located: Raleigh, N.C.
- Staff: nearly 8,000
- Enrollment: 34,000+
- Campus: 2,110 acres

Snapshot: Siemens Type MV Switchgear

- Available in 250 MVA through 1000 MVA
- Single - unit or stackable configuration, manufactured in Wendell, N.C.
- Closed door racking
- Indoor / outdoor designs
- Five year maintenance interval

Siemens Energy, Inc.
7000 Siemens Rd.
Wendell, NC 27591 USA

1-800-347-6659
servicesolutions.sptd@siemens.com

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