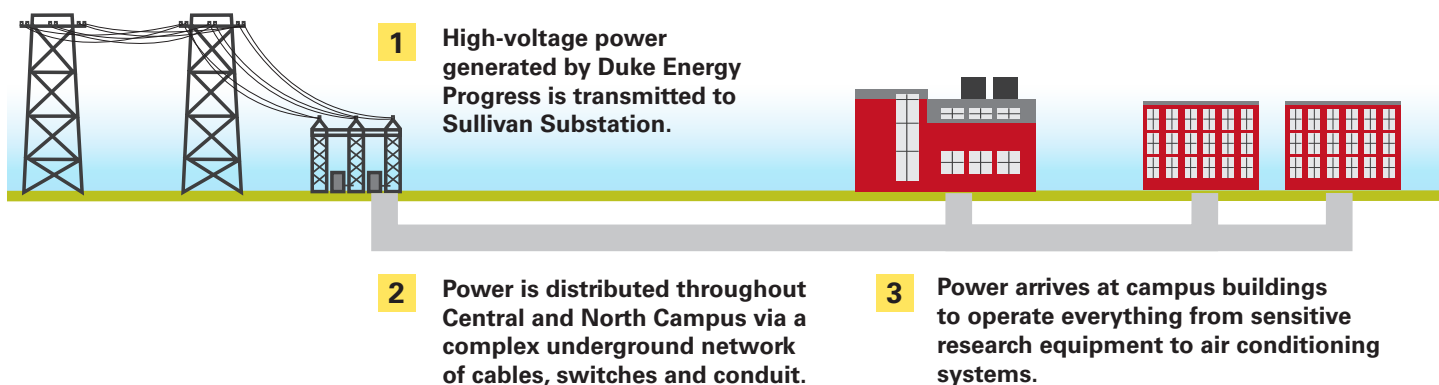


Electric Distribution System Modernization

Central and North Campus

The Facilities Division plans, maintains and operates complex infrastructure to supply the utility needs of a large research university. On Central and North Campus, a crucial part of this utility infrastructure is the electric distribution system.

HOW IT WORKS



Why Modernization Is Necessary

In 2015, NC State utilized a specialized engineering firm to evaluate the electric distribution system on Central and North Campus. This analysis confirmed operational challenges:

System Age. Parts of the system are nearly 60 years old. Some equipment is obsolete and has reached the end of its useful life. The system's aging condition results in unplanned outages.

Safety. Many switches are obsolete and underground. Confined spaces are a safety challenge for maintenance workers.

System Organization. Without a master plan to guide system expansion over time, the resulting configuration is not well-organized. An organized system will reduce outages and operational risk. When an outage does occur, it can be isolated and corrected quicker.

Future Growth. Projected building renovations and new construction impact the amount of electricity needed in various areas of campus. The system must be flexible to accommodate future growth.

SYSTEM MODERNIZATION PLAN

The 2015 evaluation led to the Electric Distribution System Master Plan. The plan includes 10 phases that will optimize the system to reduce operational risk, enhance reliability, improve safety and provide flexibility for future growth.

The plan will simplify and organize the system. Obsolete equipment and failing duct banks will be replaced, and Sullivan Substation will receive new and more dependable equipment.

The plan was developed considering first cost, life-cycle cost, reliability and redundancy. The overall goal is to meet future electrical needs efficiently, reliably and in a cost-effective manner.