Administrative Leadership Meeting

Randy Woodson
Chancellor
Tuesday, November 9, 2021
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 11</td>
<td>TBD</td>
<td>Titmus</td>
</tr>
<tr>
<td>March 15</td>
<td>TBD</td>
<td>Titmus</td>
</tr>
</tbody>
</table>
Red and White Week Recap

- Fitts-Woolard Hall Dedication
- Belltower Time Capsule
- Think and Do The Extraordinary Campaign
Commencement Update

- Commencement will be held on Tuesday, December 14 in PNC Arena
- Mark Templeton will serve as Commencement Speaker
Questions?
POWER FORWARD
Electrical Distribution System Upgrade
NC State is embarking on a multi-year, multi-phase upgrade to our electrical distribution system.
The Electric Distribution System Upgrade project is a multi-year, multi-phase project that will organize the system to reduce operational risk, enhance reliability, improve safety, and position campus for future growth.

**Safe**
Revamped, above-ground infrastructure will reduce risks for the maintenance workers who keep our lights on and our labs humming.

**Reliable**
Overhauling the system will ensure NC State’s energy independence — and help campus stand up to storms or freezing temperatures.

**Self-healing**
Smarter technology will allow our grid to protect itself against threats, isolate faults and minimize outages and disruption on campus.

**Futureproof**
The new system will have 50% more electrical capacity, giving our university room to grow and thrive in the decades ahead.
Why upgrade the electrical distribution system?
Unplanned Electrical Outages

Electrical Outages On Central and North Campus*

*This does not include outages due to construction activity.
Our Existing System

A crucial part of NC State’s utility infrastructure is the medium-voltage electrical distribution system.

**DELIVERY**

1. High-voltage power generated by Duke Energy Progress is transmitted to Sullivan Substation.

**DISTRIBUTION**

2. Power is distributed throughout Central and North Campus via a complex underground network of cables, switches and conduit.

3. Power arrives at campus buildings, including the two central utility plants. These utility plants use electricity, in part, to create steam and chilled water for many buildings.
Sullivan Substation
Sullivan Substation Service Area

1960: 60 buildings (3.2 million GSF)
2021: 177 buildings (9.3 million GSF)
The current system faces three main challenges:

- **AGE**
- **SAFETY**
- **COMPLEXITY**
THE SOLUTION:

Electrical Distribution System Upgrade
Path to Improve Campus Electrical System

2002
Bragaw Switchyard Refurbishment

2005
Completed Sullivan Substation Study
(Strategy to guide reliability and redundancy improvements)

2012
Cates Cogen Plant Startup
(Distributed generation and efficiency)

2013
Completed Sullivan Substation Improvements
(New 15Kv metal clad switchgear and redundant transformer)

2015
Initiated Design of Central Campus Distribution Upgrades

2015
Completed North and Central Electrical Master Plan
Completed
(Strategy to guide improvements)

2018-2019
Construction within Sullivan Substation to support new electrical distribution circuits. Included some ductbank

2020-2021
Ductbank and new circuits. Building transitioned: Motor Pool area, Wolf Village, South Campus & Faucette west of Dan Allen.

2022-2025
Electrical Distribution Upgrade

Construction 2022 - 2025
Existing System:
The Plan:
Construction Phasing and Impacts

Phase I:
Winter 2021 - Winter 2023

Phase II:
Spring 2022 - Spring 2024

Phase III:
Winter 2022 - Winter 2024

Phase IV:
Spring 2023 - Summer 2025
Stats:

- Over 5 miles of new ductbank
Stats:

- 53 new above ground switches
- 104 transformer connections
Integration:

- SCADA (Supervisory Control and Data Acquisition) controls
Goals:

1. Improve safety
2. Enhance reliability
3. Isolate faults and minimize disruptions
4. Prepare the university for future growth
GOAL 1:

Improve Safety
GOAL 2:
Enhance Reliability
GOAL 3:

Isolate Faults and Minimize Disruptions
GOAL 4:

Prepare for Future Growth