

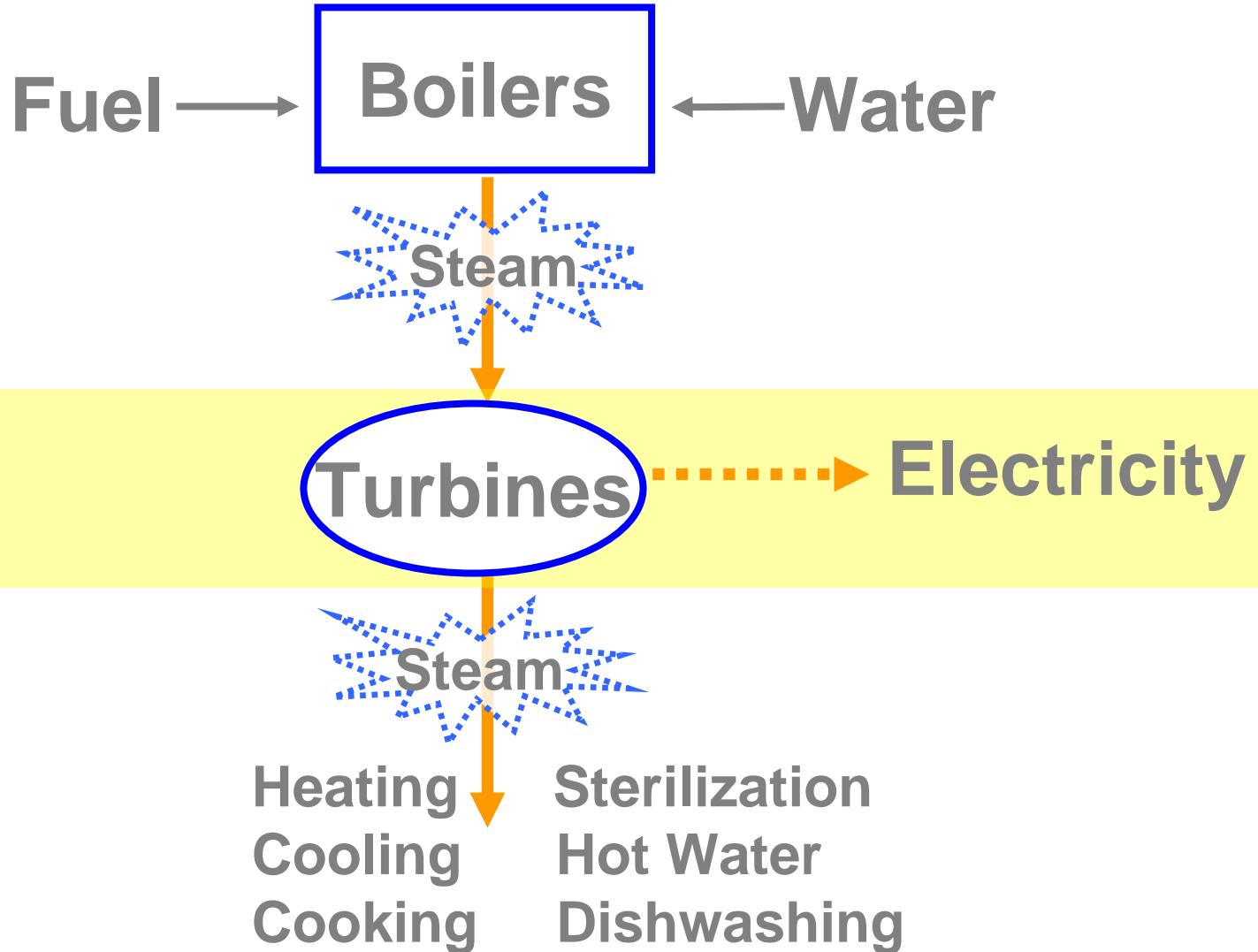
# Cogeneration Facility Improvements

Presentation of Additional Information

November 9, 2005

# What is Cogeneration?

---



# Why Improvements are Necessary

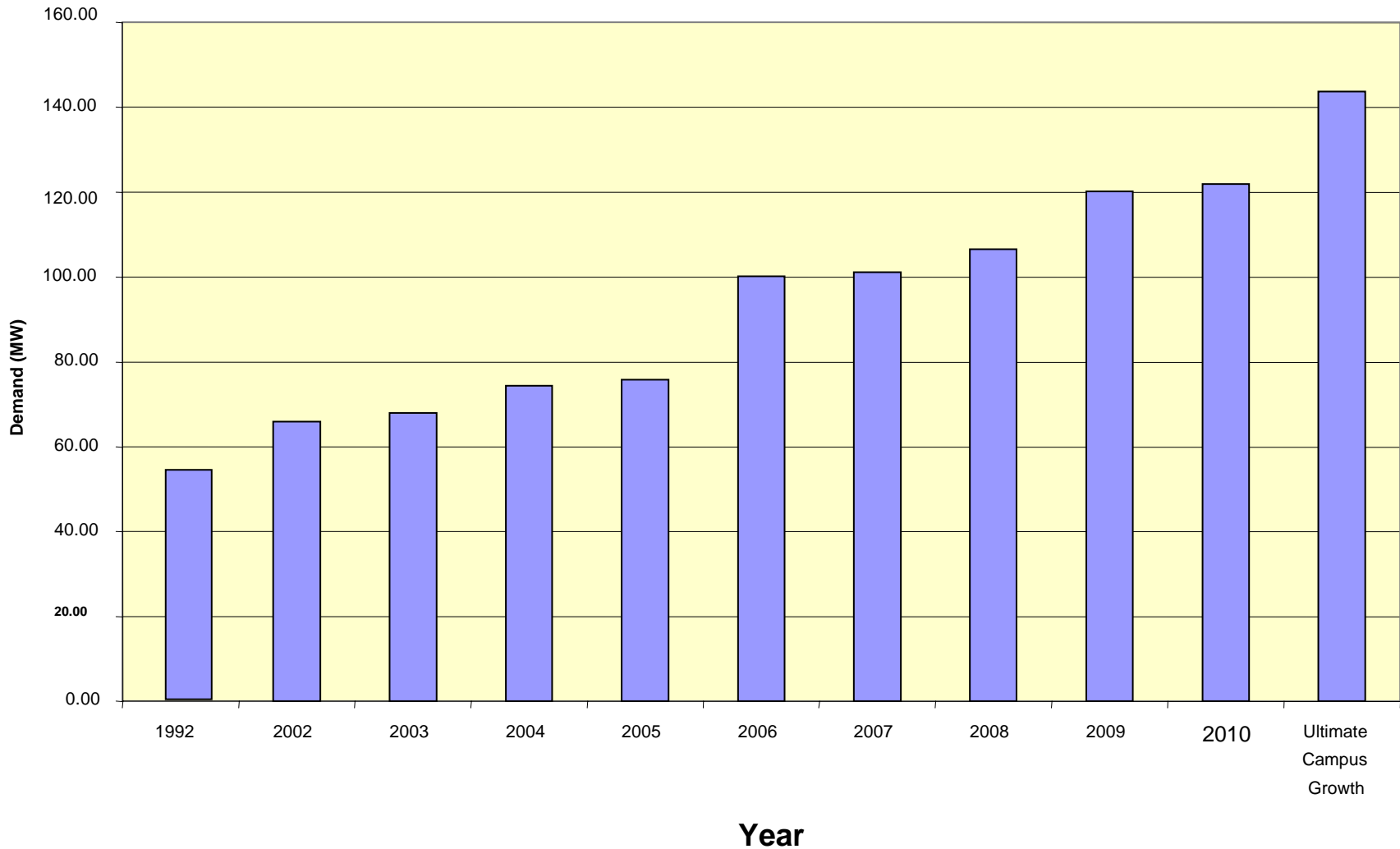


1. Insufficient capacity to serve critical facilities with self-generated electricity
2. Reduce risk of major, long duration power outages
3. Obsolescence of current equipment

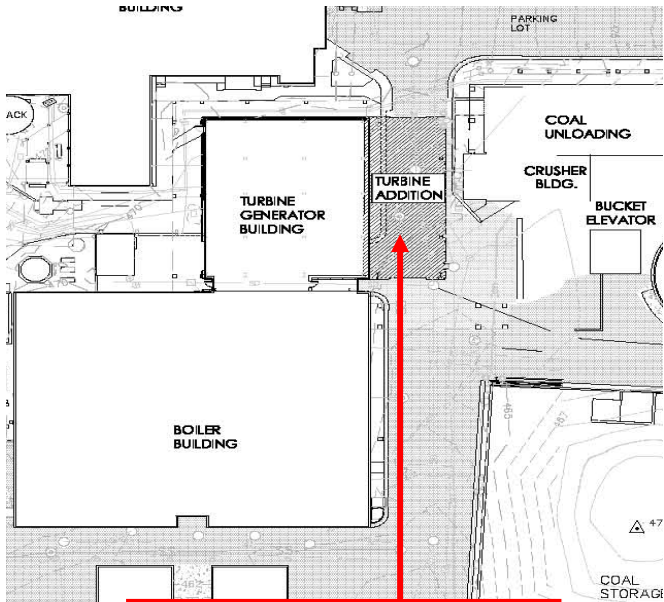
# 1. Insufficient capacity to serve critical facilities with self-generated electricity

---

## Electrical Demand Growth



# 1. Insufficient capacity to serve critical facilities with self-generated electricity



**Turbine Generator  
#4 Addition**

New critical campus facilities since 1991:

- NC Neurosciences Hospital
- NC Women's Hospital
- NC Children's Hospital
- NC Cancer Hospital (under construction)
- NC Memorial Pavilion (in design)
- Computing Facilities
- Major Research Facilities

**Solution:  
Increase Electrical Power  
Generation Capacity**



# 1. Insufficient capacity to serve critical facilities with self-generated electricity

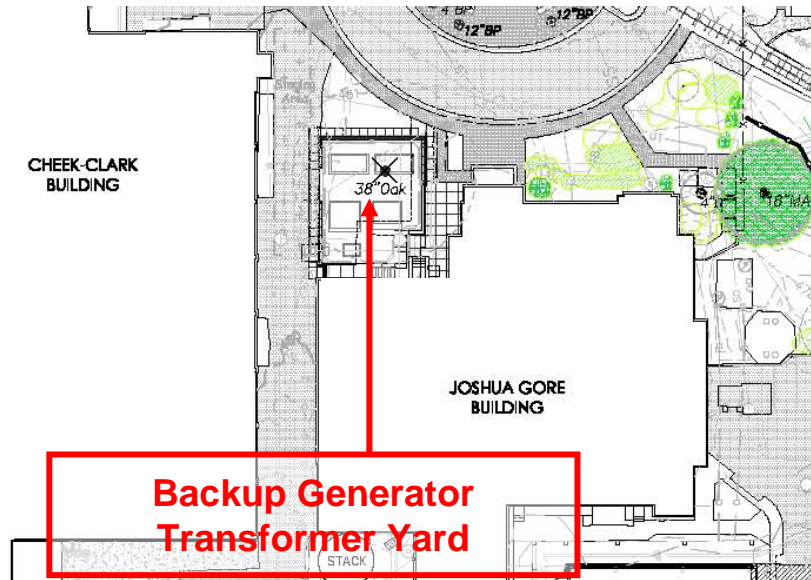
---

- Increase in electrical generation capacity will capture more of the steam to produce additional electricity
- No additional boilers are required; the steam capacity of the plant is not increased

The efficiency of the plant is increased because steam can be used to generate more electricity

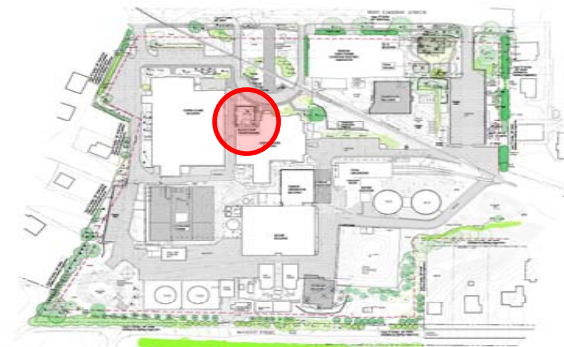


## 2. Reduce risk of long duration power outages



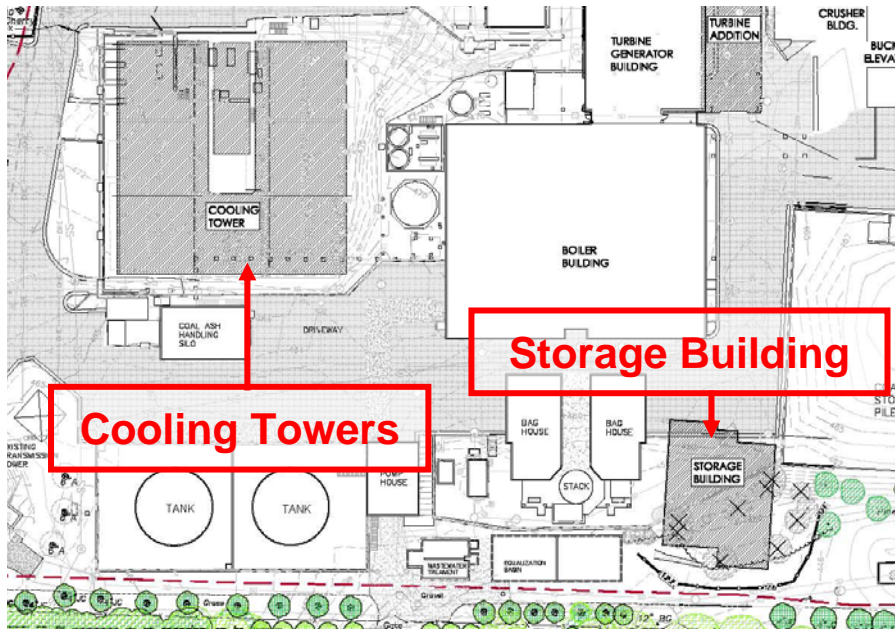
- Currently unable to restart plant without electricity from Duke Power

**Solution:**  
**Backup Generators**





### 3. Obsolescence of current equipment

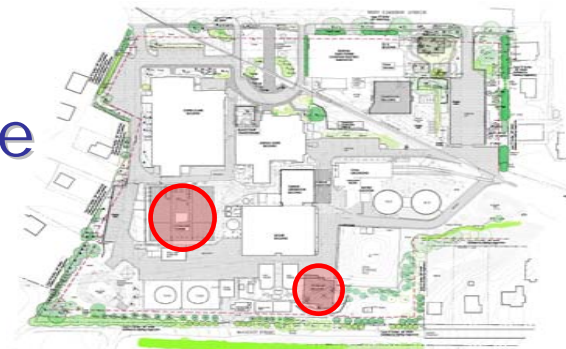


- Existing Cooling towers have reached the end of their useful lives
- Turbine Generator Upgrades require additional Cooling Towers

#### Solutions:

Replace existing towers

Relocate storage from cooling tower site



## Additional Concerns: Noise

---

- The new cooling towers will ***decrease*** noise by 10-15 dB along the west property line
- All new equipment will meet the noise code
- University will continue its commitment to neighbors to minimize noise

# Additional Concerns: Light

- No net change in light levels at any property line
- 15 additional exterior light fixtures
- 15 additional task lights, normally off



## Additional Concerns: Emissions

---

- Emission rates are limited by the State
- The UNC-Chapel Hill Cogeneration facility emissions are well below permitted levels.
- None of the changes increase the plant's coal-burning capacity

# Additional Concerns: Emissions

---



UNC's Cogeneration Facility is one of the nation's cleanest coal-burning facilities; since this plant went online it has remained at the forefront of technology and continues to be nationally recognized