



# EO80 Update for State-Owned Buildings

## Background Information and Next Steps

### State Energy Office

June 23, 2022



# Governor Cooper's Executive Order 80

- Issued October 29, 2018
- Key Goals to strive for by 2025:
  - Reduce energy consumption per square foot (EUI) in state-owned buildings **by 40%** from fiscal year 2002-2003 levels\*
  - Builds on EUI goal established by GS 143-64.12(a) which required a **30%** reduction by 2015 based on the 2002-2003 baseline



\* Energy Use Intensity (EUI) – defined as the measurement of a building's annual utility consumption relative to gross square footage, normally stated as BTUs/sqft.



# State-Owned Building Accomplishments

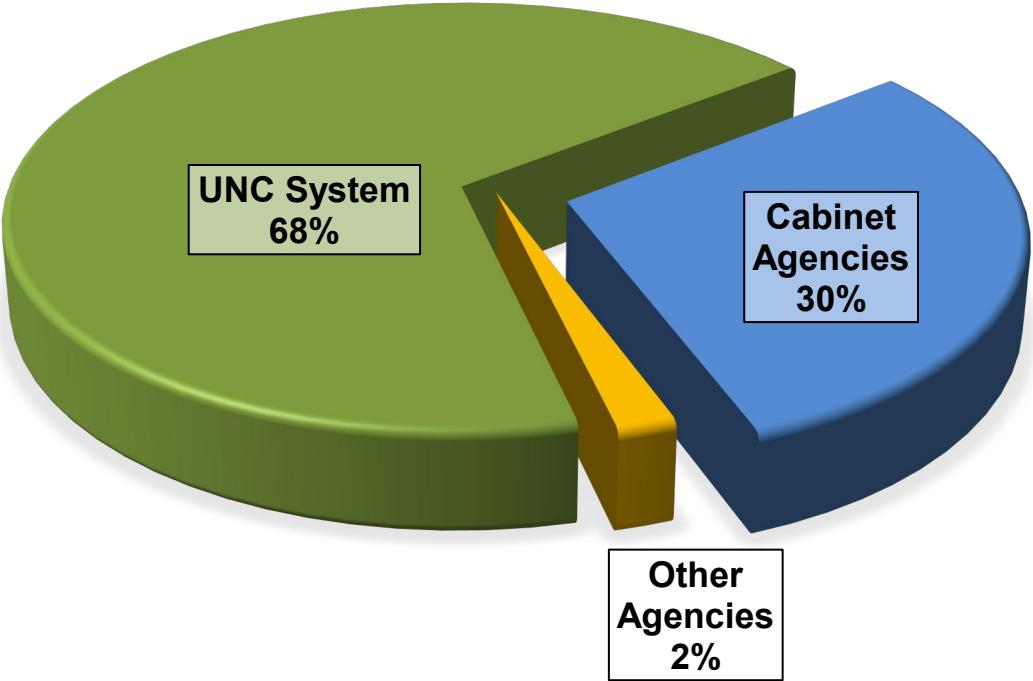
- During FY2020-21, all state-owned buildings collectively:
  - **\$8.7 MM** Less in Actual Utility Spending
  - Avoided\* **\$161 MM** in Utility Costs
- Since FY2002-03:
  - Avoided\* **925,456 MTCO<sub>2</sub>e** in Greenhouse Gas Emissions
  - Avoided\* **\$1.6 BB** in Utility Costs



*\* Avoided costs represent the amount of money or emissions that would have been utilized if the entity did not implement any energy efficiency retrofits or upgrades when compared to the baseline.*

# Utility Spending

## FY20-21 UTILITY PERCENTAGES



## Utility Spending FY20-21

Cabinet Agencies	\$90 MM
Other Agencies	\$6 MM
UNC System	\$204 MM
<b>Total</b>	<b>\$300 MM</b>

~\$821,000 per day or  
~\$34,200 per hour!



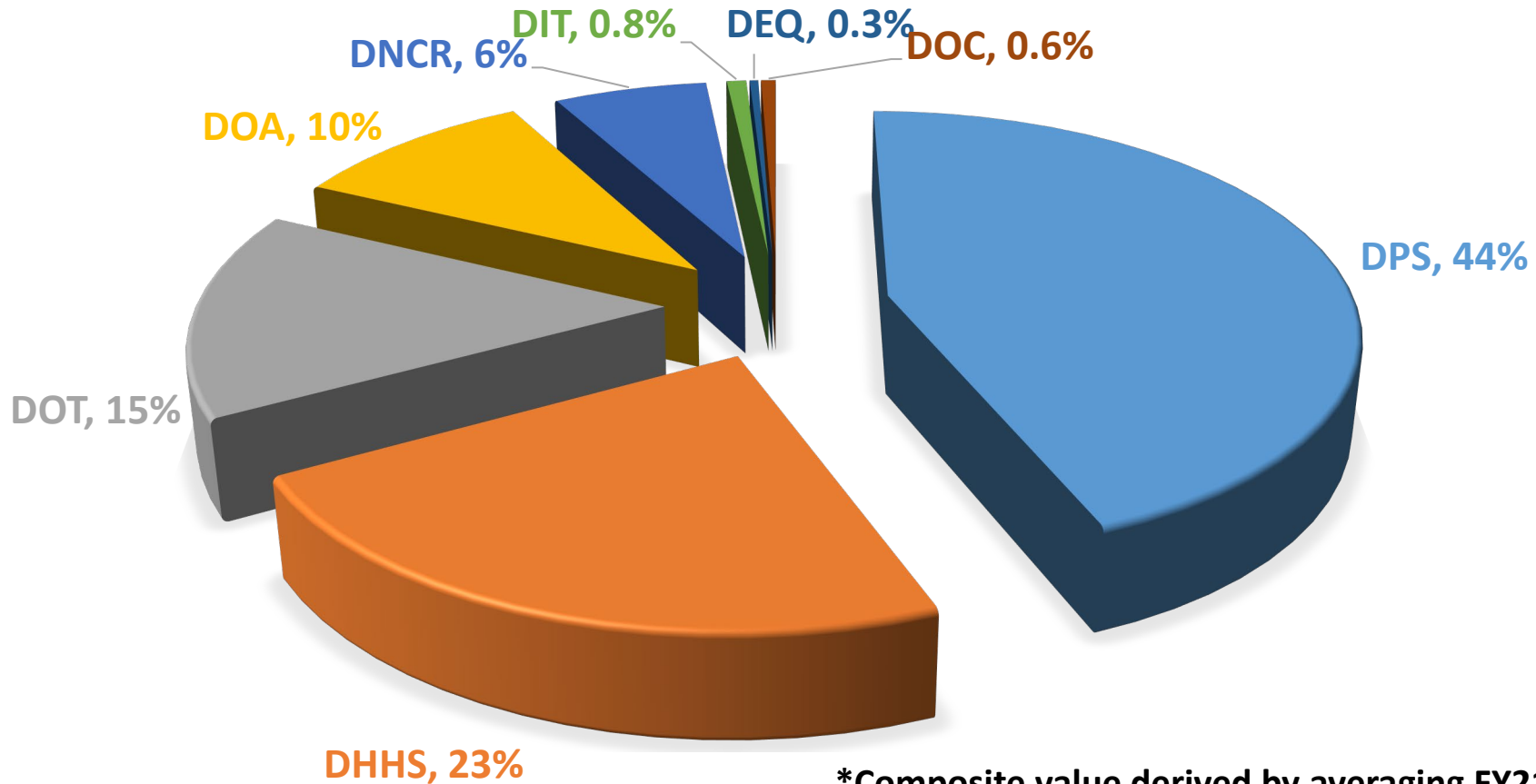
# EUI & Square Footage Changes (FY02-03 to FY20-21)

Participant		Cabinet Agencies	Other Agencies	UNC System	State-Owned Buildings Total
Gross Square Footage	% Change	+23%	+23%	+63%	+46%
EUI	% Change	-23%	-4%	-36%	<b>-31%</b>





# Cabinet Agency EUI Percent Impact\*

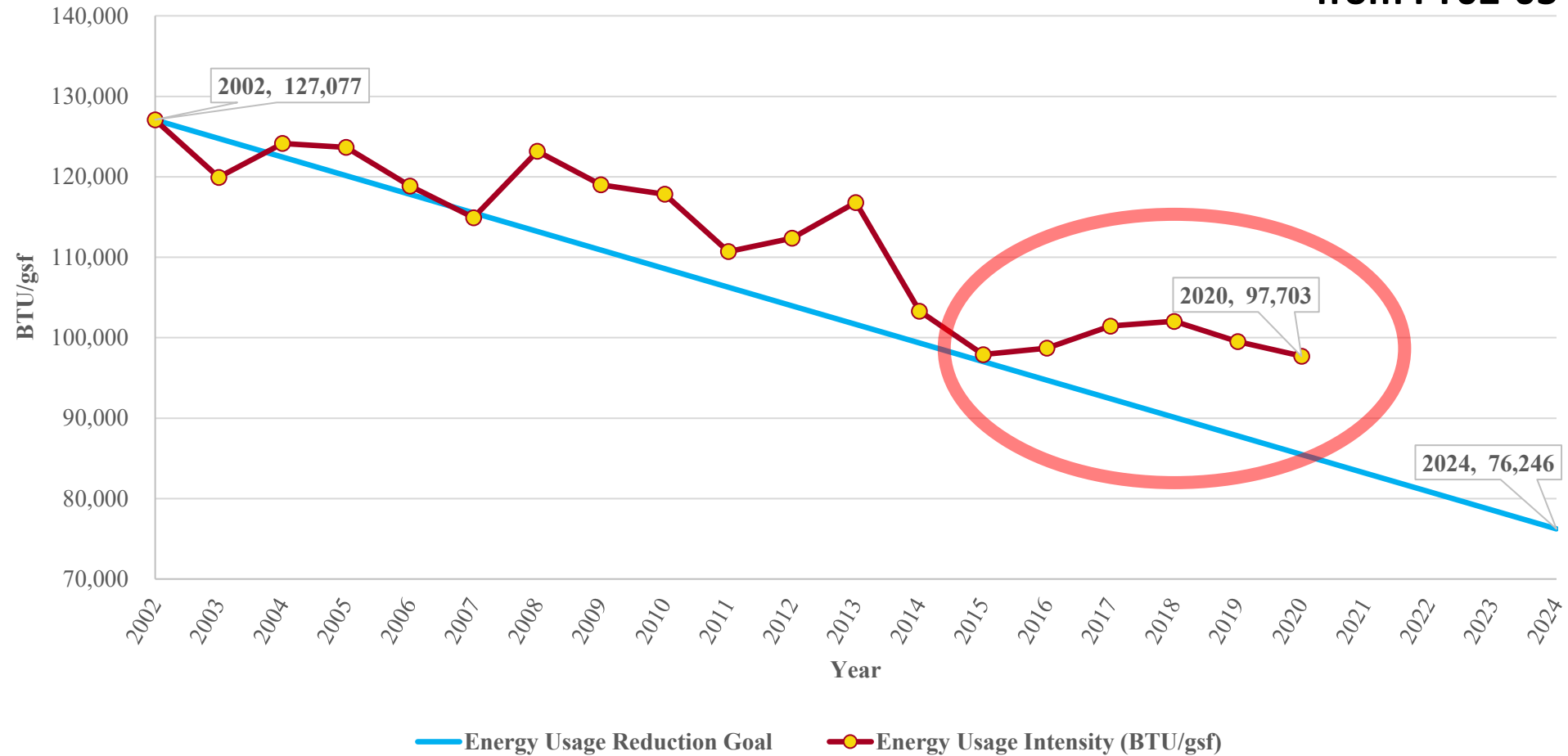


\*Composite value derived by averaging FY21 percent contribution of BTU and gs to collective total



# Cabinet Agency EUI Trend

Collective 23% Reduction  
from FY02-03 Baseline



# Cabinet Agency EO80 Projections

- SEO met with agencies to identify energy efficiency projects and buildings that could be targeted to assist with **proportionately meeting the 40% goal by 2025.**
- Identified projects consisted of the following general categories:
  - Electrical
  - Building Envelope
  - Mechanical Upgrades
  - Other (i.e., microgrids; clean energy improvements; recommissioning)





# Cabinet Agency Results from E080 Projections

“Big 5”

Cabinet Agency	FY2020-21 EUI Reduction	Estimated Reduction through FY2025 with Energy Projects	Performance Contract	Unfunded Project Amounts
DPS	-29%	-47%	\$48MM	\$22MM
DHHS	-30%	-34%	-	\$28MM
DOT	-25%	-29%	-	\$38MM
DOA	-9%	-15%	-	\$7MM
DNCR	-30%	-45%	\$11MM	\$10MM
DIT	15%	4%	-	\$1MM
DOC*	-9%	-9%	-	-
DEQ	-21%	-29%	-	\$1MM
<b>TOTALS</b>	<b>-23%</b>	<b>-35%</b>	<b>\$59MM</b>	<b>\$107MM</b>

\*DOC's sole facility reporting utilities was deemed surplus by the DOA.



# Summary of “Unfunded” Project Categories

<b>Project Category</b>	<b>Average Construction Time*</b>	<b>Average Annual Energy Savings</b>	<b>Average Annual Monetary Savings</b>
Building Envelope	12 Months	2,789 MMBTU	\$0.03 MM
Electrical	11 Months	8,493 MMBTU	\$0.2 MM
Mechanical	13 Months	3,272 MMBTU	\$0.03 MM
Other (i.e., clean energy, etc.)	18 Months	5,619 MMBTU	\$0.08 MM

\*Construction time is dependent on supply chain and workforce availability.



# Competing Priorities Increase Energy Usage

- Adding EV Charging Infrastructure.
- Adding New HVAC at Correctional Institutions.
- Employees Returning to the Office.
- Health and Safety Measures for COVID-19.



***We must manage and offset energy increases from competing priorities!***

# Analysis of Projections

## • IF....

- All identified projects are funded at **\$107MM**
- Construction is **completed before 2025**
- Energy usage and GSF trends **remain constant**
- **All** competing energy priorities are **offset**



## • THEN....

***Cabinet Agencies can achieve 35% Reduction by 2025***

# What is Needed to Meet the 40% Goal by 2025

Participant	Cabinet Agencies	Other Agencies	UNC System	State-Owned Buildings Total
FY20-21 EUI	-23%	-4%	-36%	-31%
Needed EUI	-35%	-5%	-44%	<b>-40%</b>

\*This analysis assumes no change to GSF for all sectors.



# Key Takeaways for Agencies

- **Needs:**

- **\$107MM** for Identified Projects
- 12-18 Months for Construction / Implementation of 1 Major Project
- Alternative Generation to Offset Competing Energy Priorities
- Dedicated Energy Managers / Staff to Oversee Projects
- Building Automation Systems and Mandatory Setpoints

- **Next Steps:**

- Actively Pursue Funding Opportunities (*i.e., IIIA / NC Energy Efficiency Repair & Renovation Funds*)
- Streamline Procurement Processes
- Implement Energy Audits for Identified Priority Buildings
- Proactively Address Challenges to the Labor Force and Supply Chain



# Thank You!

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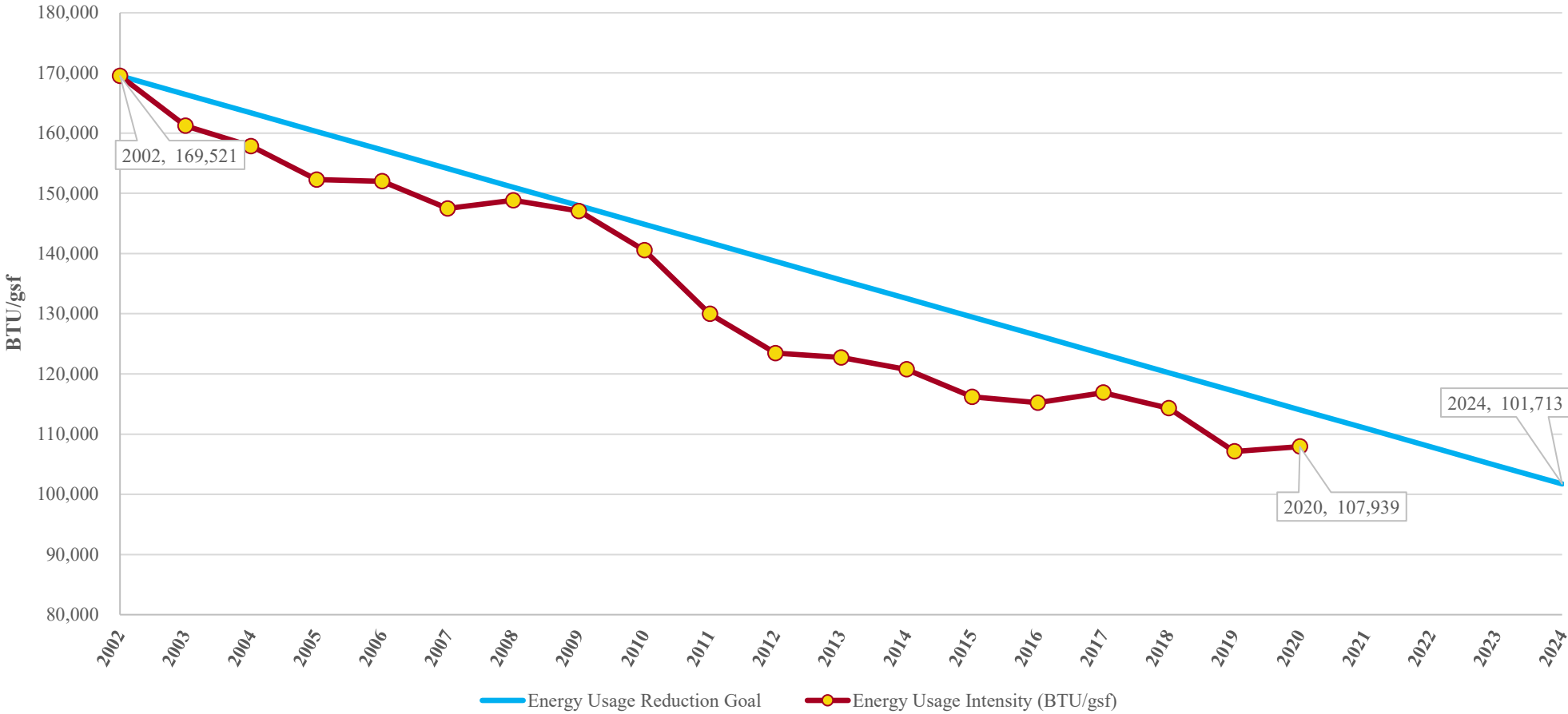
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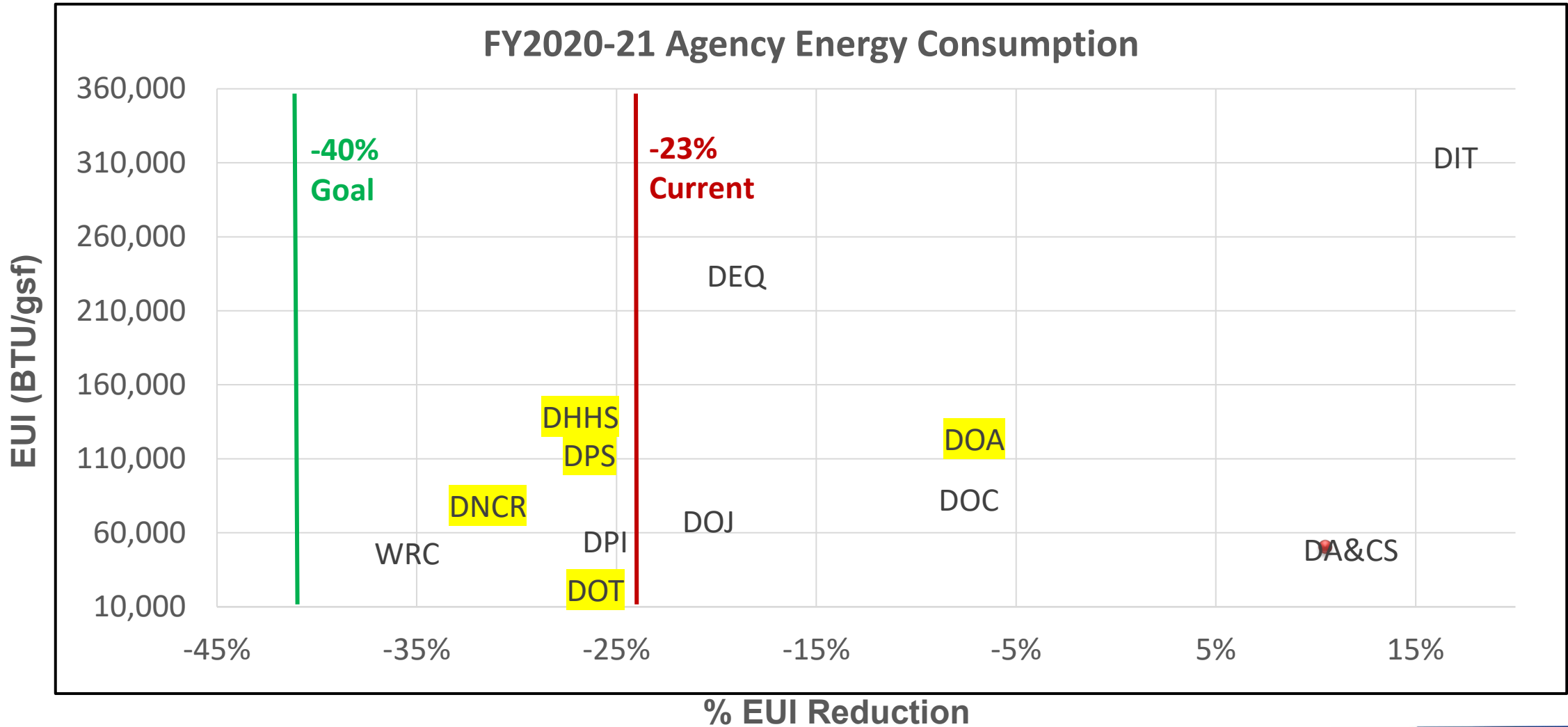
# Reference Material



# UNC System EUI Trend



# Agency EUI Scatter Graph



Note: The highlighted entities (i.e., “Big 5”) comprise 92% of energy consumption for all state agencies.



# General Project Highlights

- HVAC Upgrades
- BAS / Control Systems
- LED Lighting with Occupancy Sensors
- Envelope Repairs
- Community Microgrids for Critical Facilities
- Properly Decommission / Recommission Buildings
- Energy Efficient COVID-19 Health/Safety Measures
- Rooftop or Ground-Mount Solar
- Geothermal
- Boiler Upgrades
- Performance Contracts