# Sustainability Sub-Council, Spring 2025

Madhu Khanna

*Alvin H. Baum Family Fund Chair & Director*

iSEE

Institute for Sustainability, Energy, and Environment

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# Agenda for Today

- ACES Energy Performance Contract
- iCAP 2025
  - Updated targets
  - DIA-specific targets

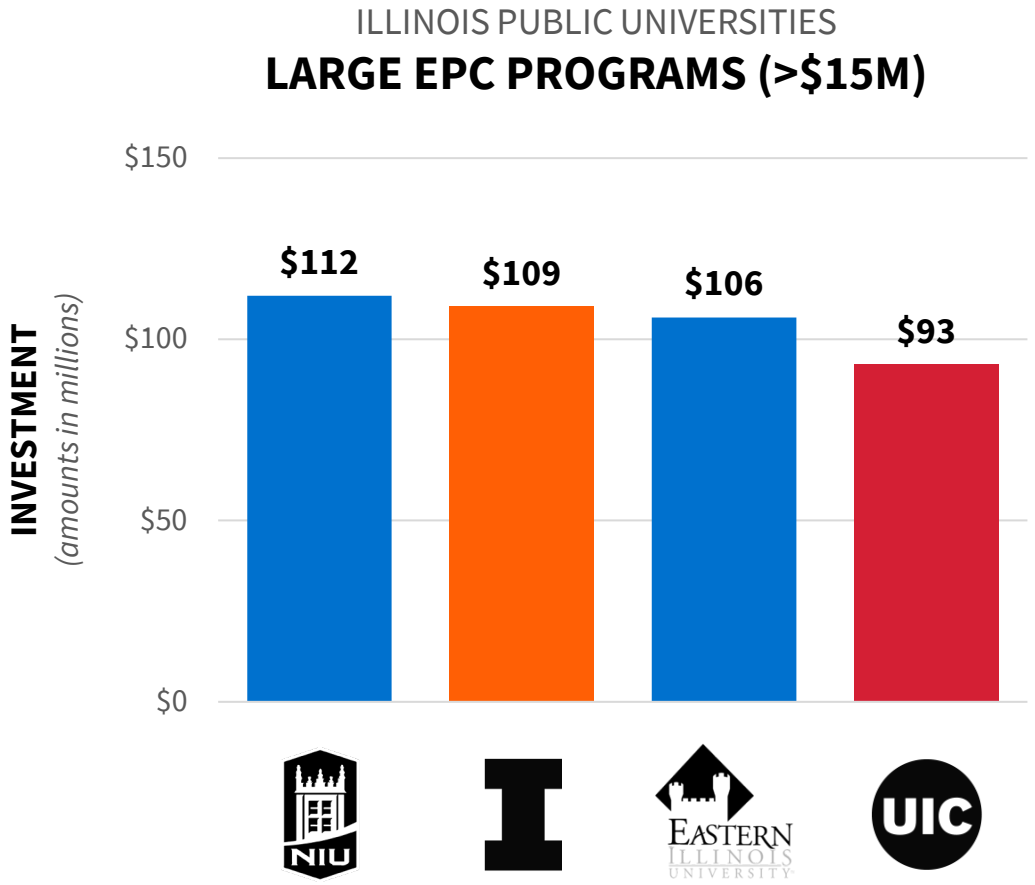
# College of ACES – EPC Project 007 (U23053)

University of Illinois Urbana-Champaign

April 10, 2025

# Energy Performance Contracting (EPC)

- Public University Energy Conservation Act (110 ILCS 62)
- Partner with qualified energy service companies (ESCOs)
- Implement energy conservation measures (ECMs) to enhance energy efficiency and reduce costs
- Guaranteed energy savings contracts - energy or operational savings, or both, will meet or exceed costs of ECMs **within 20 years**



# Benefits of EPC at Urbana

## Transfer of Risk

Performance and financial risks shift from university to ESCO

**$109,720,000**

Invested in EPCs

## Deferred Maintenance

Infrastructure is upgraded in compliance w/current safety and energy codes

**$67,000,000**

Deferred Maintenance Addressed

## Sustainability

Carbon emissions are reduced in support of environmental commitments and iCAP goals

**24,860 Mt**

Carbon Emissions Saved Annually

## Savings

Operating and utility costs decrease as a result of increased efficiencies

**$212,250,000**

Guaranteed Utility Savings (20 Years)

# ACES EPC History

**APRIL 2020**

iCAP Energy Team submitted Energy004 recommendation

**APRIL 2021**

Sustainability Council approved recommendation

**JULY 2022**

*Campus allocated $1.5M towards ~$40M project

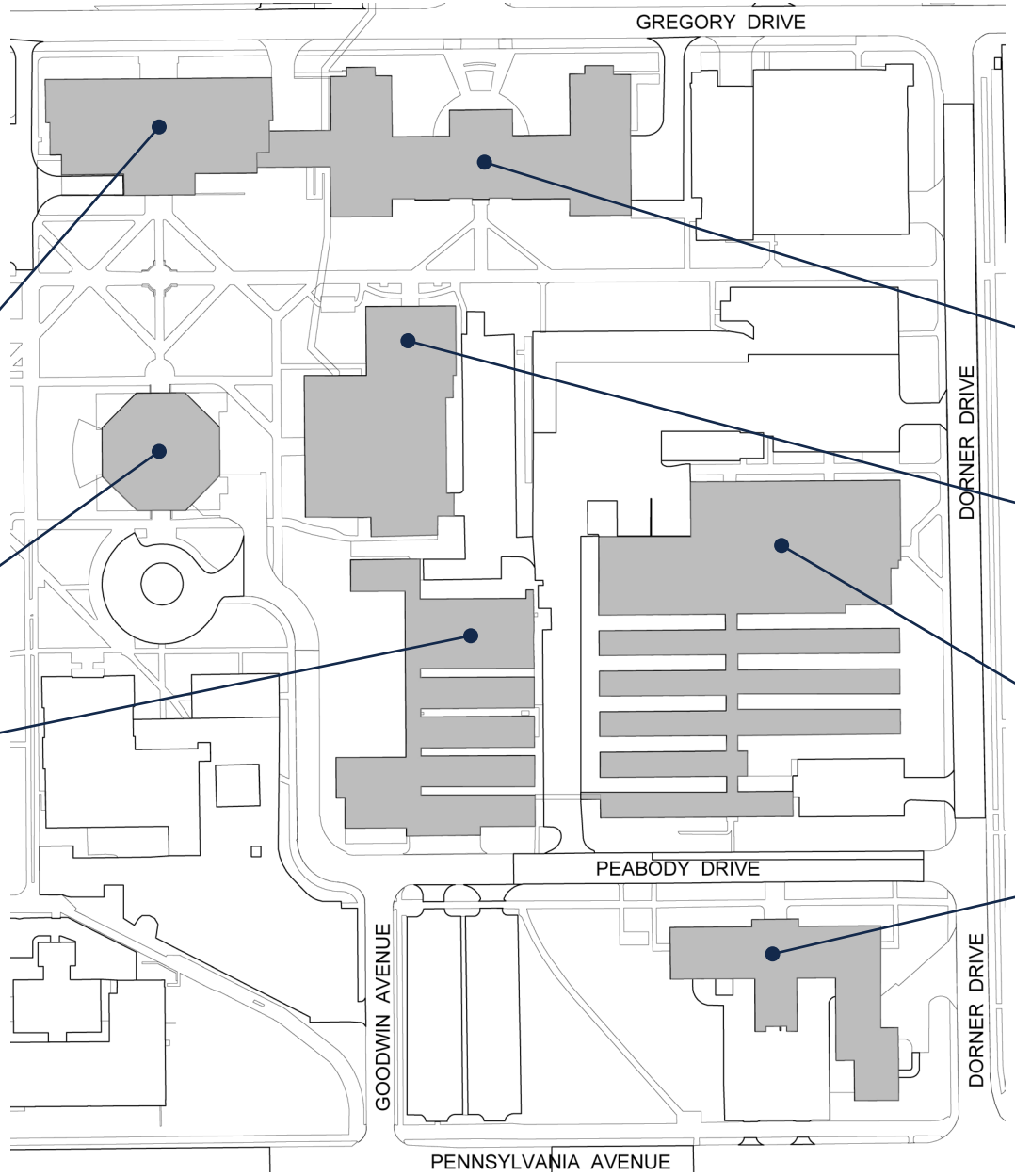
> *The study is expected to be completed in FY24, at which time University leadership will determine if we should move forward with the $30M or $40M proposal and confirm the additional deferred maintenance funds to be required from central reserves.*
>
> *– *Vicky Gress, former Acting Assoc. Chanc. and Vice Prov. for Budget and Resource Planning*

# Facilities

0165 Animal Sciences Laboratory

0377 ACES Library, Information, and Alumni Center

0131 Turner Hall Greenhouses




0366 Edward R. Madigan Laboratory

0197 Jonathan Baldwin Turner Hall

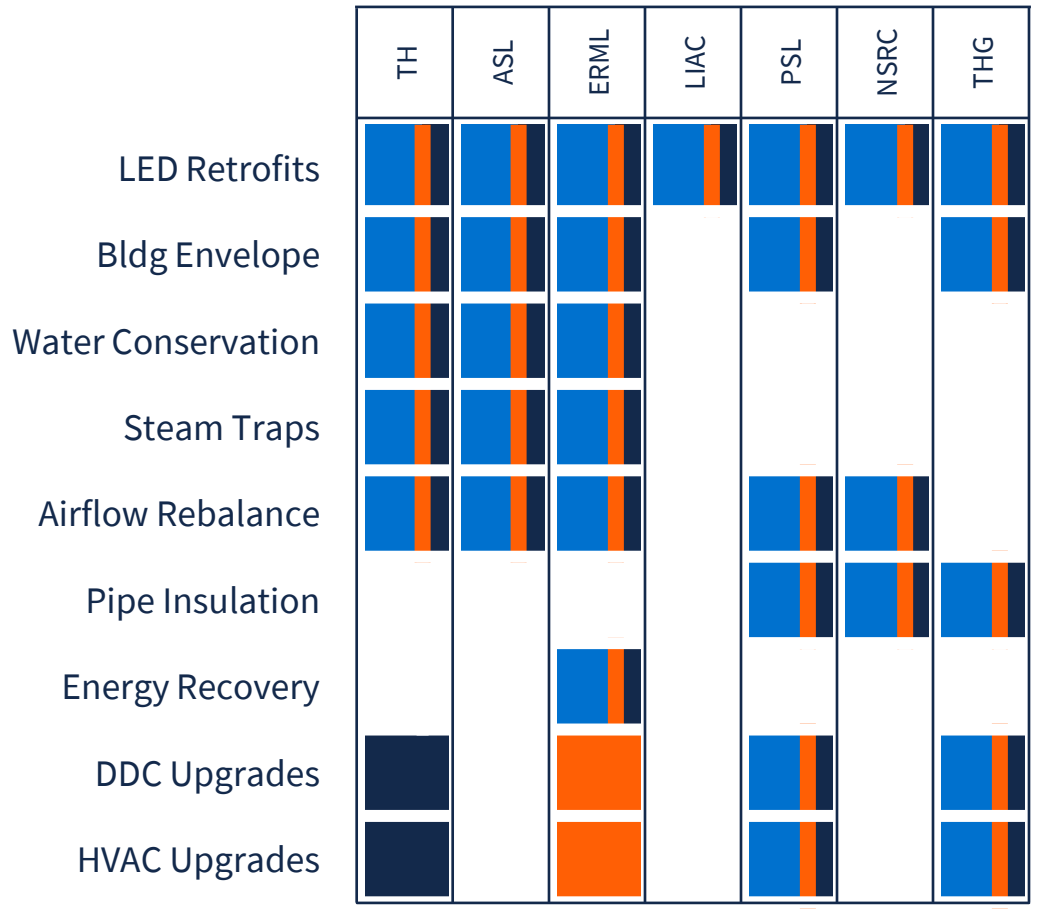
0256 Plant Sciences Laboratory

0124 National Soybean Research Center

# Internally Funded Project Scenarios

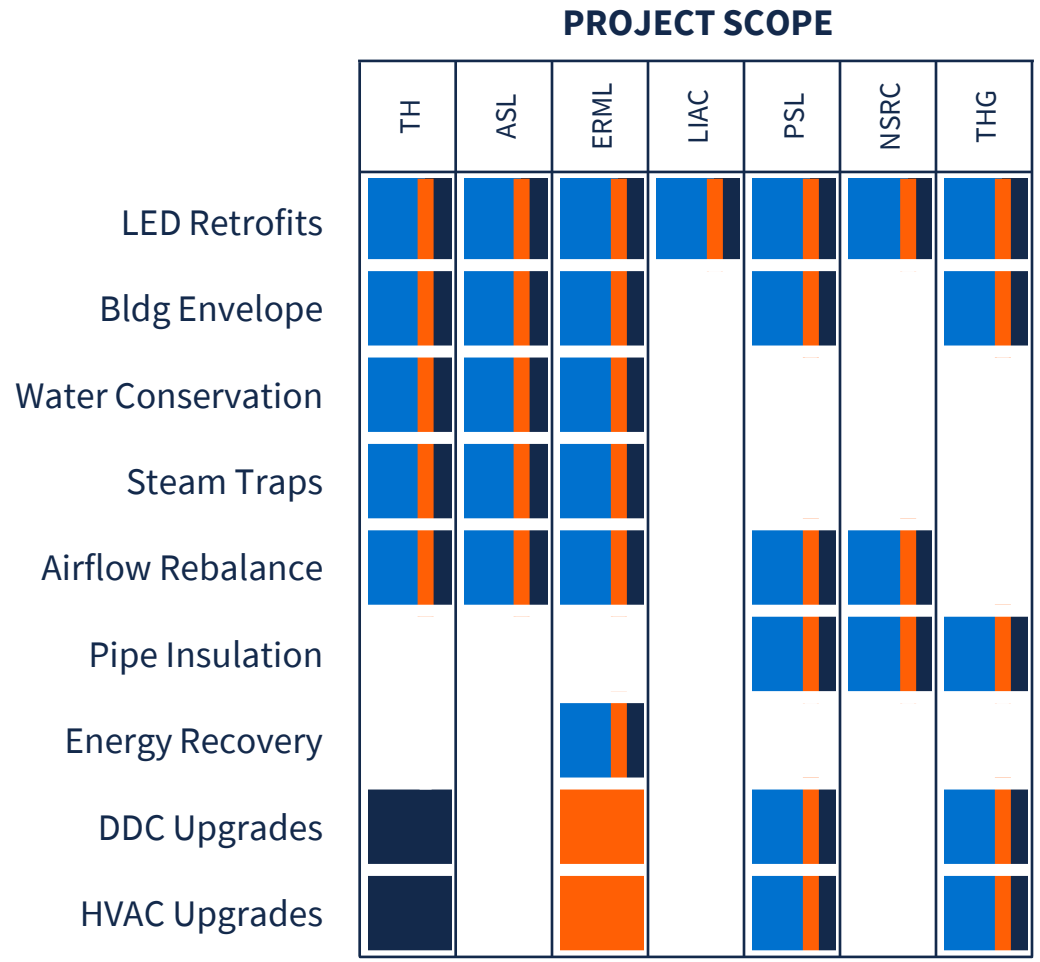
| | ❶ Energy Only | ❷ Energy + | ❸ Max DM |
|---|---|---|---|
| **SCOPE** | Base | Base + ERML New DDC, FH Retrofit, Fan Array | Base + Turner 1965 & 1975 HVAC |
| **TOTAL PROJECT $** | **$24,131,601** | **$38,409,878** | **$57,814,299** |
| **20-YR SAVINGS** | $50,437,905 | $57,266,364 | $57,557,525 |
| **EST. DM ADDRESSED** | $55,574,736 | $64,374,174 | $71,207,573 |
| **TOTAL BENEFIT** | **$106,012,641** | **$121,640,538** | **$128,765,198** |
| **ROI** | 439% | 317% | 223% |
| **20-YR GHG** | 66,600 Mt $CO_2$ | 77,208 Mt $CO_2$ | 77,575 Mt $CO_2$ |

**PROJECT SCOPE**



# Externally Financed Project Scenarios

| | ❶ Energy Only | ❷ Energy + | ❸ Max DM |
|---|---|---|---|
| **SCOPE** | Base | Base + ERML New DDC, FH Retrofit, Fan Array | Base + Turner 1965 & 1975 HVAC |
| **TOTAL PROJECT $** | **$48,389,768** | **$77,021,209** | **$115,931,823** |
| **20-YR SAVINGS** | $50,437,905 | $57,266,364 | $57,557,525 |
| **EST. DM ADDRESSED** | $55,574,736 | $64,374,174 | $71,207,573 |
| **TOTAL BENEFIT** | **$106,012,641** | **$121,640,538** | **$128,765,198** |
| **ROI** | 219% | 158% | 111% |
| **20-YR GHG** | 66,600 Mt $CO_2$ | 77,208 Mt $CO_2$ | 77,575 Mt $CO_2$ |



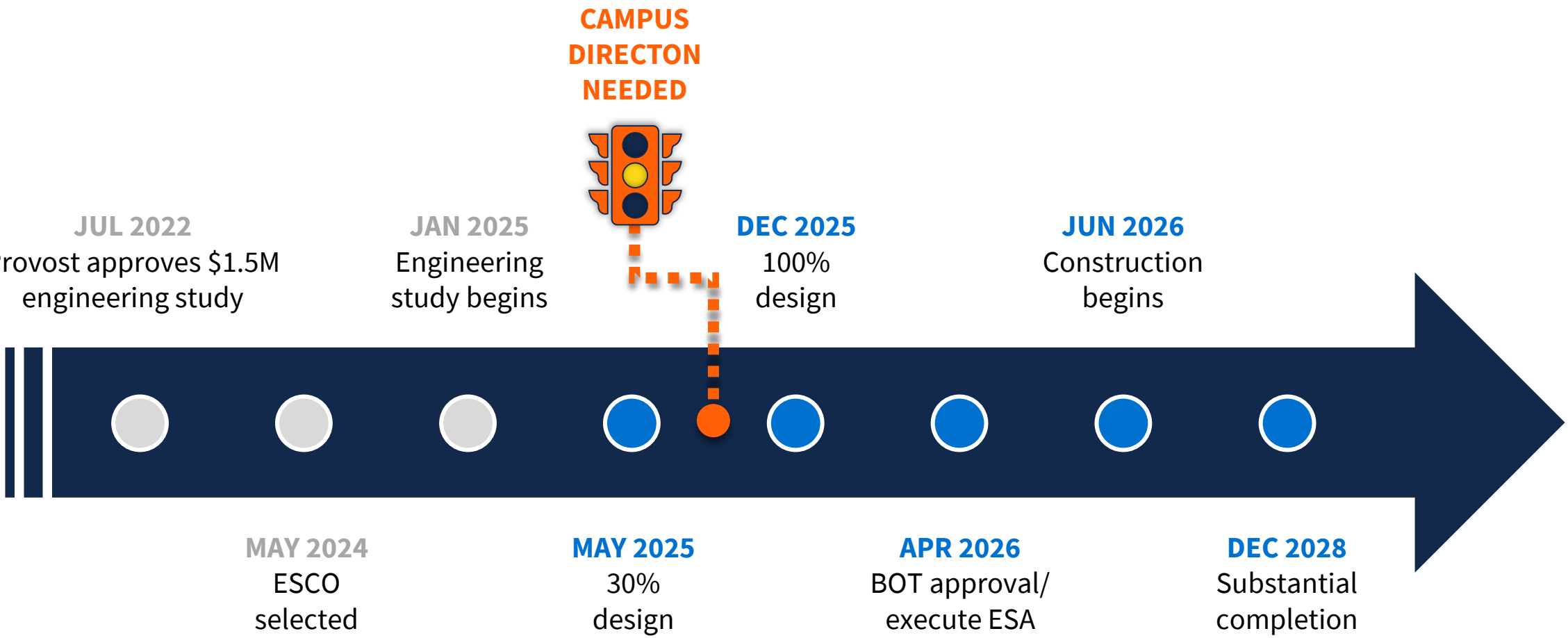
# Potential Funding Sources

| | Past Contributions<br>EPC 001 – EPC 006 | Current Allocations<br>EPC 007 |
|---|---|---|
| Utilities & Energy Services | $16,520,000 | $0 |
| ESCO Five Year Plan Reserve [1] | $35,151,000 | $1,500,000 |
| Deferred Maintenance [2] | $27,453,000 | $0 |
| Campus | $12,241,000 | $0 |
| External Financing | $18,355,000 | $0 |

[1] *$40M internal financing allocated in FY2013; $3.1M remaining*

[2] *AFMFA, UA Reserves, Provost Deferred Maintenance Funding*

# Project Timeline



# Net Positive Benefits

## Reduces Risk

- $1.5M invested in 100% design — project will be shovel ready
- Project costs locked in — protects from inflationary increases
- ESCO guarantees savings — pays for any shortfall

## Protects from Rising Energy Costs

- Locks in energy efficiency today — helps achieve iCAP goals
- Shields budgets from volatile utility rates
- Secures utility incentives while available

## Addresses Deferred Maintenance Now

- Pays for capital projects with energy savings
- Addresses existing safety issues
- Protects from emergency failures/shutdowns


1975 TURNER HALL AIR HANDLER

# Thank You

## Questions?

Sylvia McIvor & Amber Perfetti

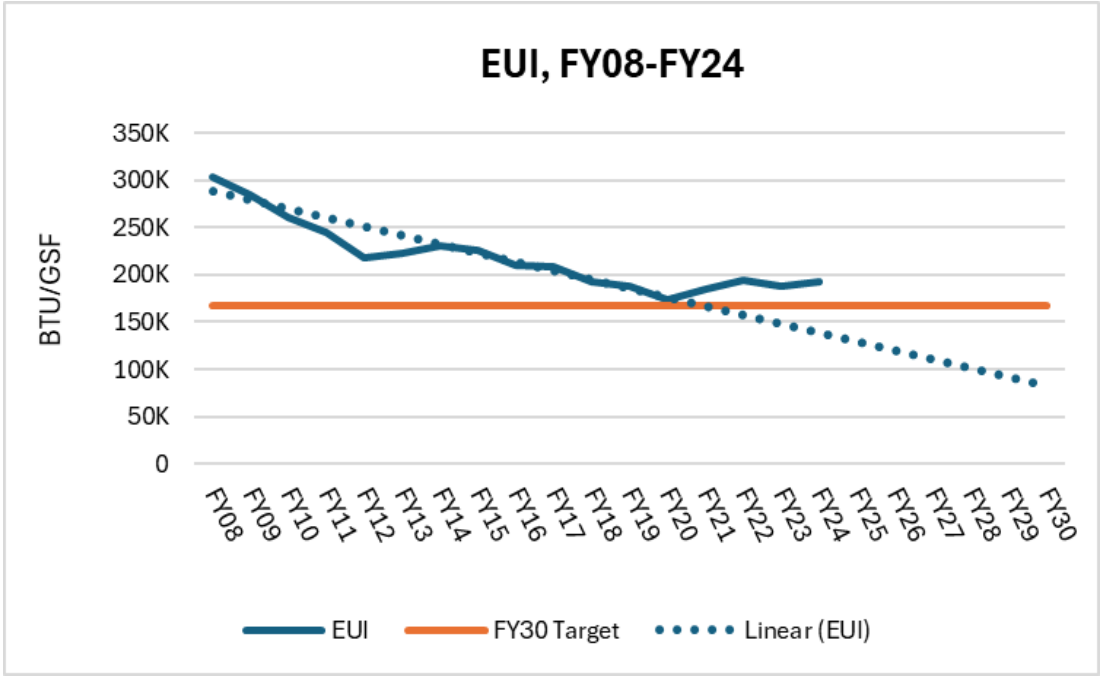
# iCAP 2025 – Summary of Updates to Objectives & Targets

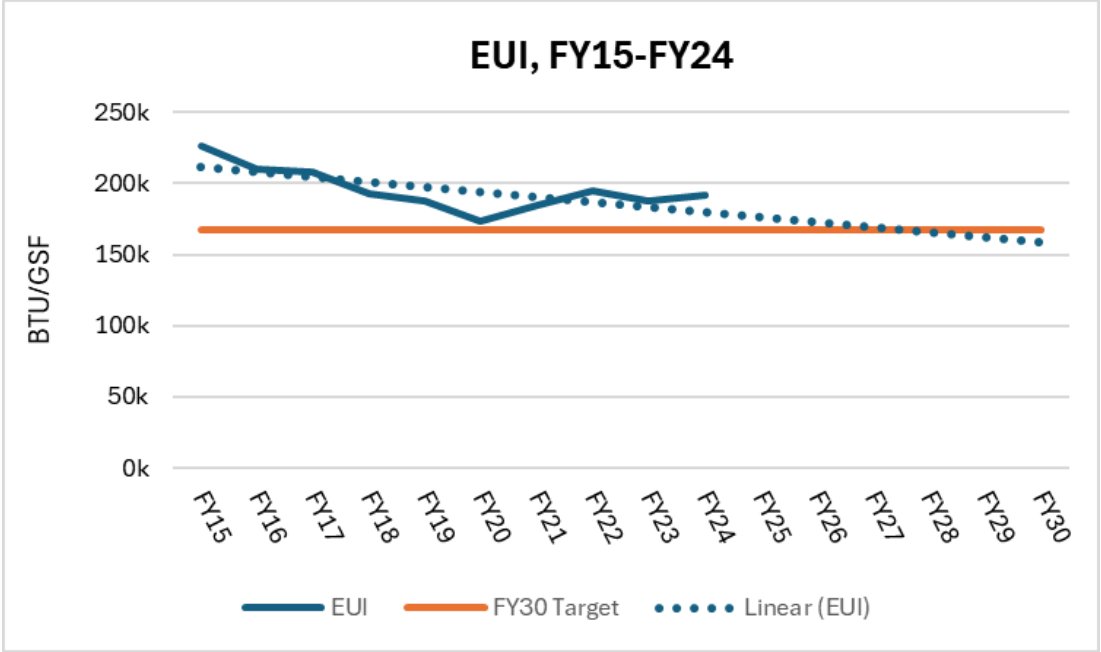
# Energy Use Targets

- **Targets set in iCAP 2020:**
  - **Reduce Energy Use Intensity (EUI) of university facilities from the FY08 baseline by: 45% by FY30, 50% by FY40, and 60% by FY50.**
  - **Reduce the total annual energy consumption of each college-level unit by at least 20% from an FY15 baseline by FY35**

- Progress:
  - 36% EUI reduction compared to FY08 baseline
  - Progress has plateaued since FY20

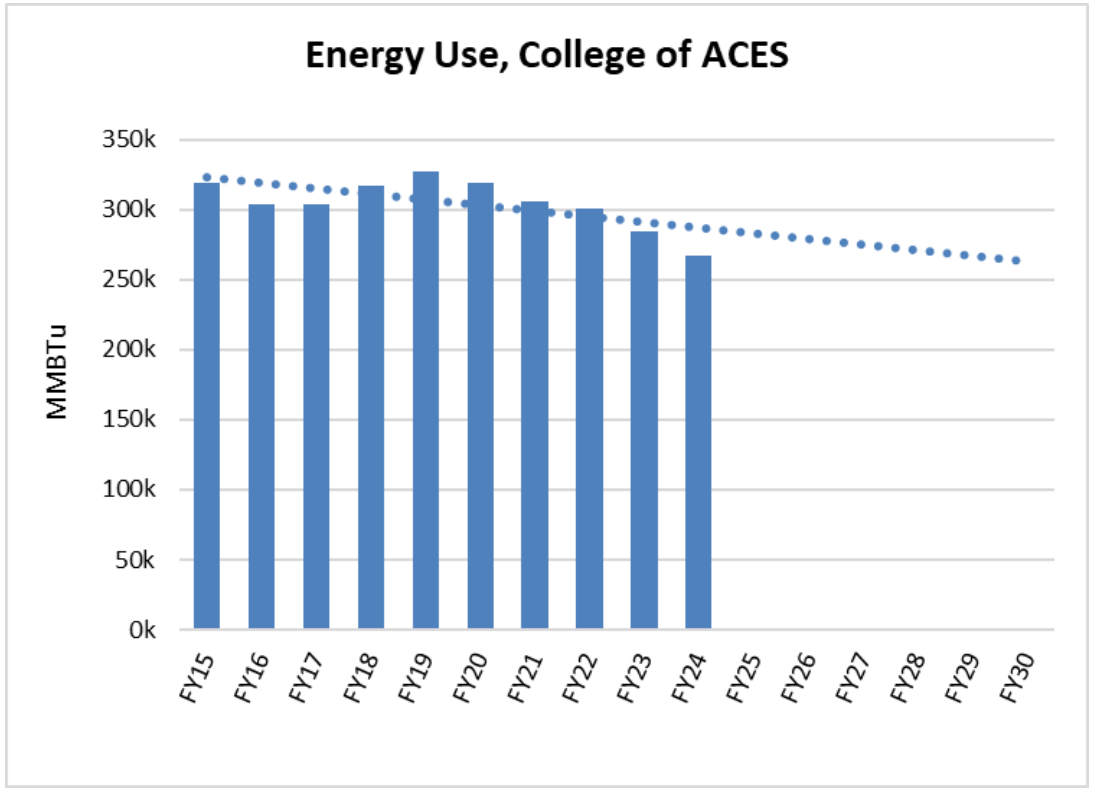
- Contributing factors
  - Increase in energy-demanding space and deferred maintenance
  - Few sustainable design features

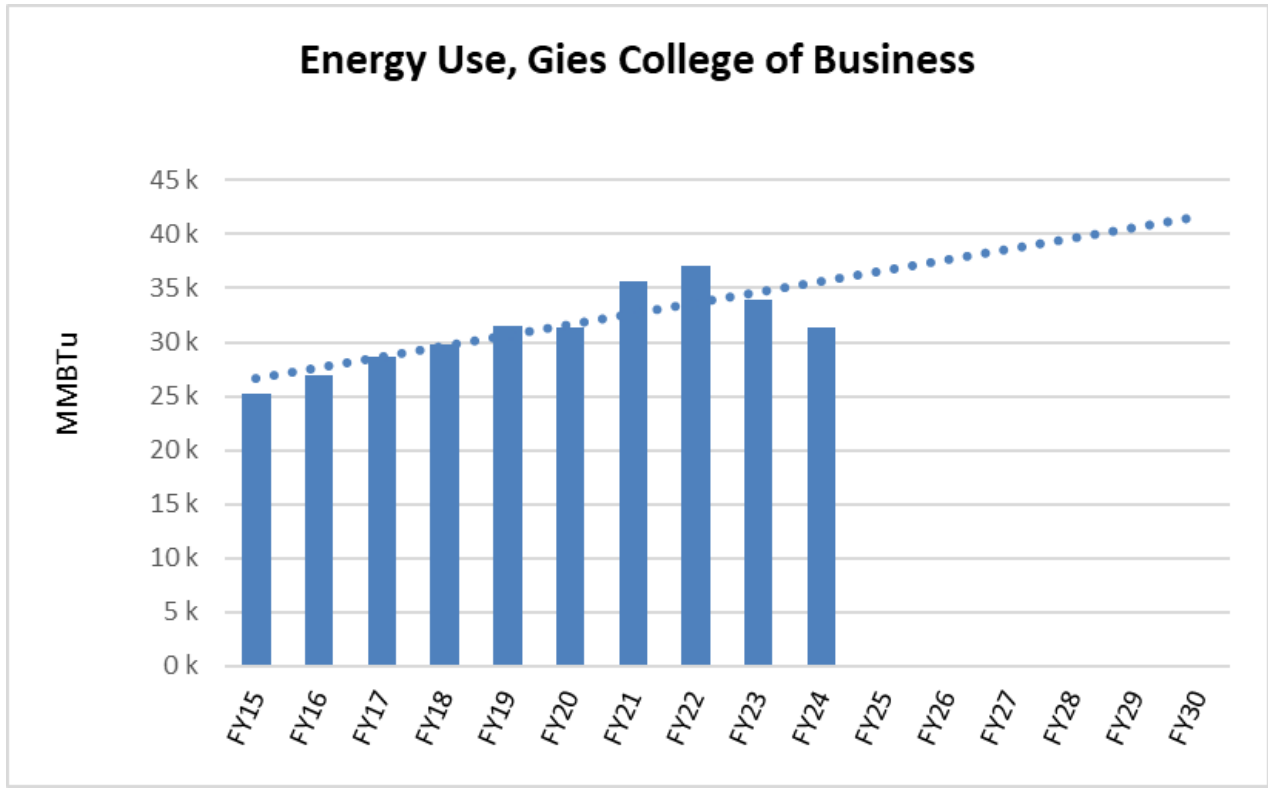


# College-Level Energy Consumption Targets

- Progress in reducing energy consumption varies by college.



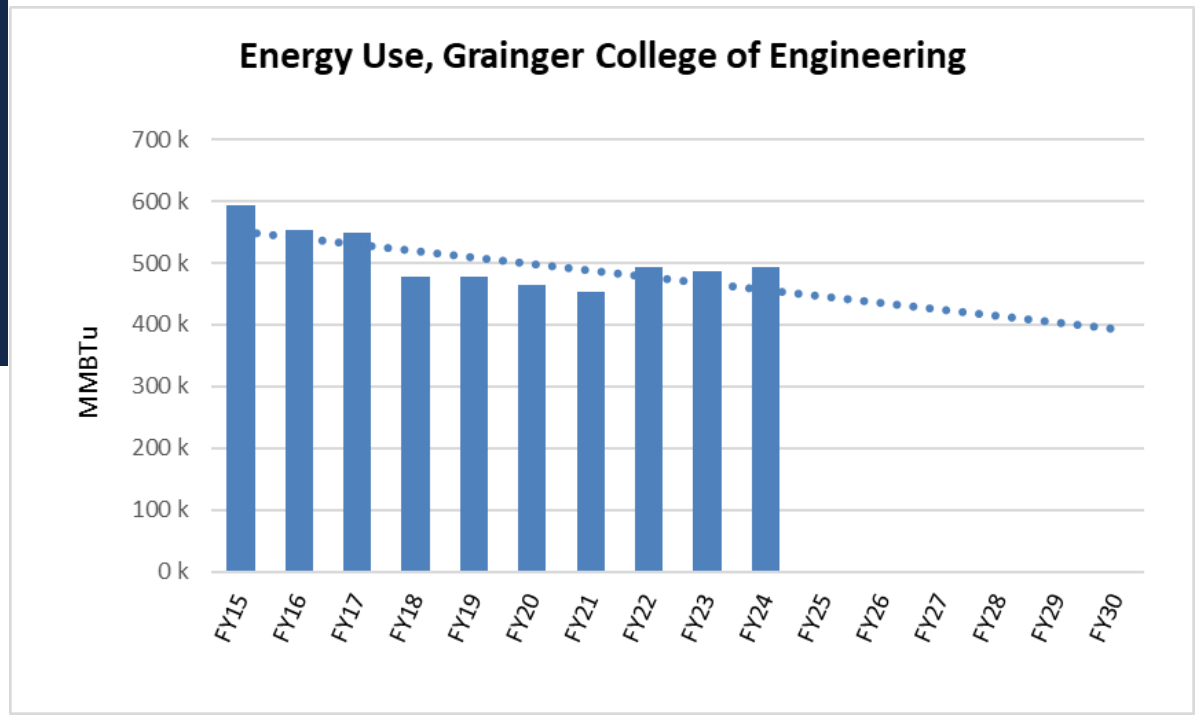

FY24 Results: -16.1%

FY30 Projection: -17.6%

FY24 Results: +24.5%

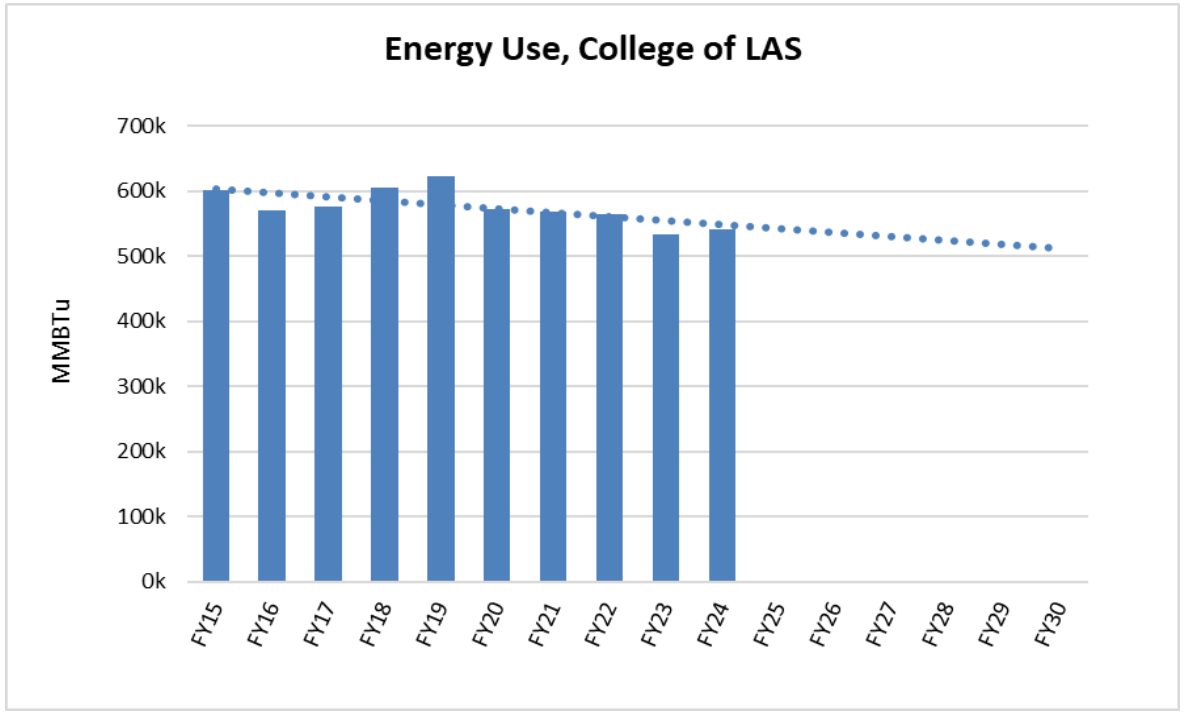
FY30 Projection: +65.3%

# College-Level Energy Consumption Targets




FY24 Results: -16.9%

FY30 Projection: -33.9%




FY24 Results: -9.9%

FY30 Projection: -14.9%

# Proposed Changes to Energy Use Targets and Approach

- Propose removing the objective about college-level energy use.
  - Engage college leadership, F&S and Provost's Office in setting appropriate targets and identifying paths to achieving them. Complete this process by FY28.
  - Upcoming Campus Master Plan update provides an opportunity to set viable goals for energy use reduction at the college level.

- Propose adding a sustainability representative to the committee developing the new Campus Master Plan.

- Should we remove numeric targets from EUI objective?

# iCAP 2025 – DIA-specific Objectives

# Rationale

- We are partnering with DIA on sustainability initiatives, which began with discussions about our Coca-Cola contract and waste reduction.

- As one of the most visible entities on campus, DIA has an opportunity to use their platform to support and elevate sustainability efforts within their division, across campus, in the community and beyond.

- Developing and committing to sustainability goals will put DIA on equal footing with athletic departments at peer institutions.

- iSEE proposes incorporating new, DIA-specific objectives into the next iCAP.

# A growing commitment to sustainability within collegiate athletics

- University athletic departments with stand-alone sustainability master plans
  - University of North Carolina, 2016
  - Texas A & M, 2023
- University athletic departments with: a dedicated sustainability officer within athletics; LEED-certified facilities; facility-specific energy efficiency and sustainability measures; zero waste events; sustainable landscaping; carbon offsets
  - University of Florida
  - Ohio State University
  - University of Michigan
  - Penn State University
  - University of Washington
  - University of Colorado
  - Arizona State University
  - Duke University
  - Stanford University
  - University of California
  - University of Oregon
  - Colorado State University
  - University of Minnesota
  - North Carolina State

# Proposed objectives for DIA

Energy

1. Assess energy use intensity (EUI) for each athletic facility and develop tailored plans for decreasing EUI by investing in energy-efficient measures.
2. Prioritize sustainable design features for new construction and renovations.

Transportation

1. Increase the use of alternatively fueled vehicles in the DIA fleet.
2. Encourage contractors to add alternatively fueled vehicles to their fleets.

# Proposed objectives for DIA

Land and Water

1. Reduce water demand by installing native, drought-resilient plantings.
2. Improve rainwater management by increasing water recapture infrastructure (e.g., permeable pavers, raingardens).

Zero Waste

1. Reduce landfilled waste at athletic events by increasing the number of recycling bins and water refill stations and support their use through marketing, outreach, and education.

# Proposed objectives for DIA

Engagement

1. Raise the visibility of the university's and DIA's commitment to sustainability by developing and implementing a comprehensive communications strategy for sustainability initiatives.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