

# Sustainability Sub-Council

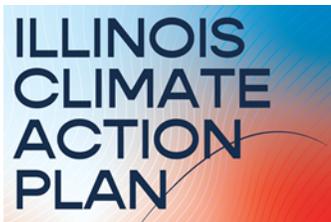
November 10, 2021



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# Welcome

- Introductions
- iCAP process reminder
- Energy007 Comprehensive Energy Planning Document
- LW002 and Rainwater Funding Issues
- Wrap up

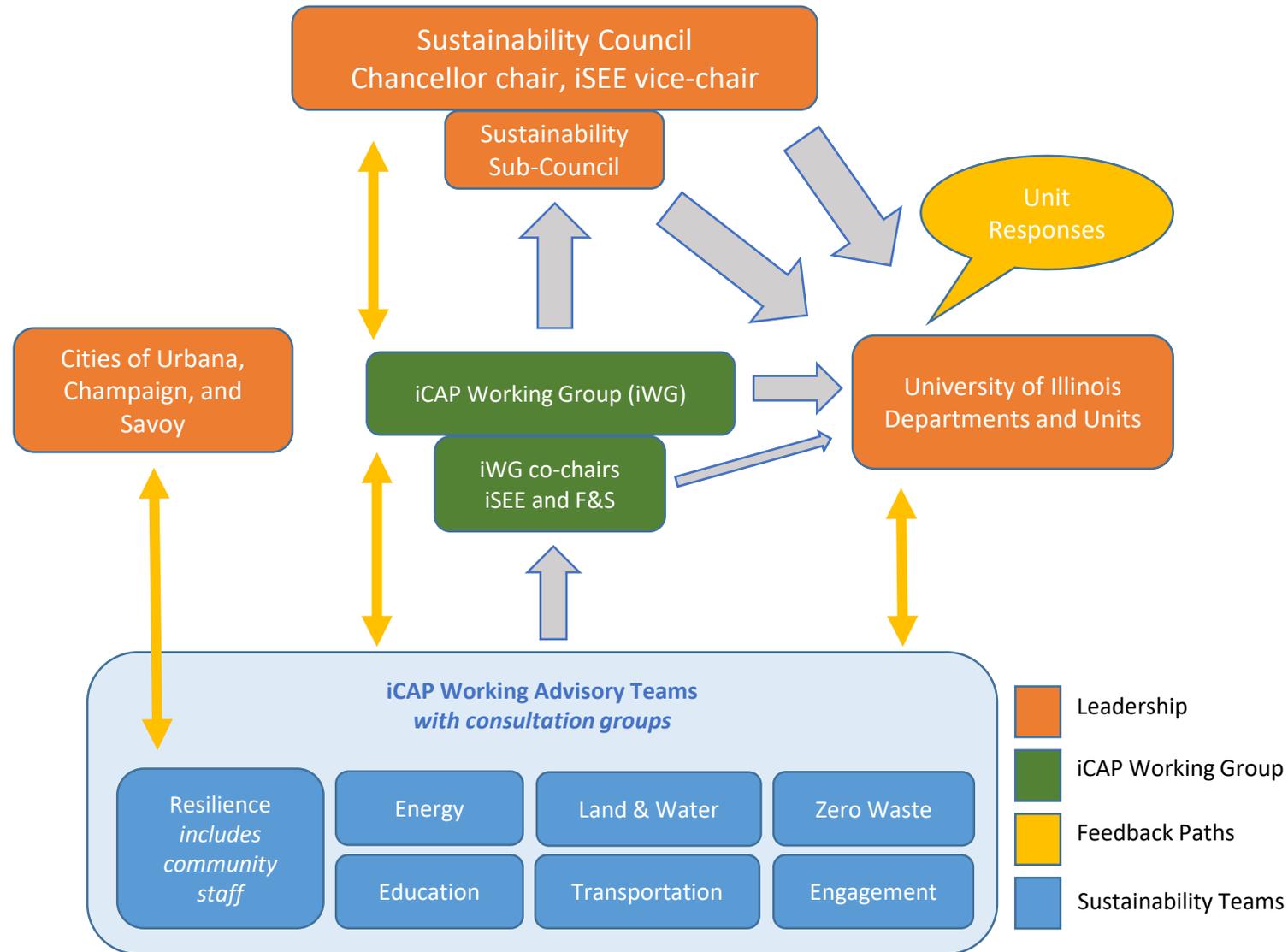


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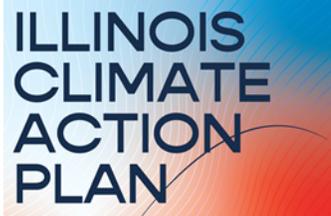


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# iCAP 2020 Process



# Comprehensive Energy Planning Document



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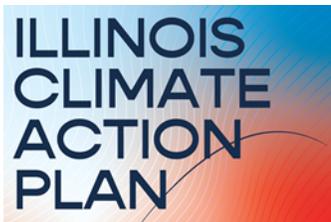


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# Energy007

## Comprehensive Energy Planning Document

- iWG: *“We support hiring a professional service company to develop a specific, measurable, achievable, realistic, and time-bound carbon neutrality energy master plan. This would utilize information provided in the F&S Energy Management Plan and the Energy Utilities Production and Distribution Master Plan. We recommend the Chancellor work together with the President’s office to approve development of this plan.”*
- For discussion: Hiring a consultant to develop a comprehensive plan to achieve carbon neutrality



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**ENERGY MARKET PARTICIPANT**

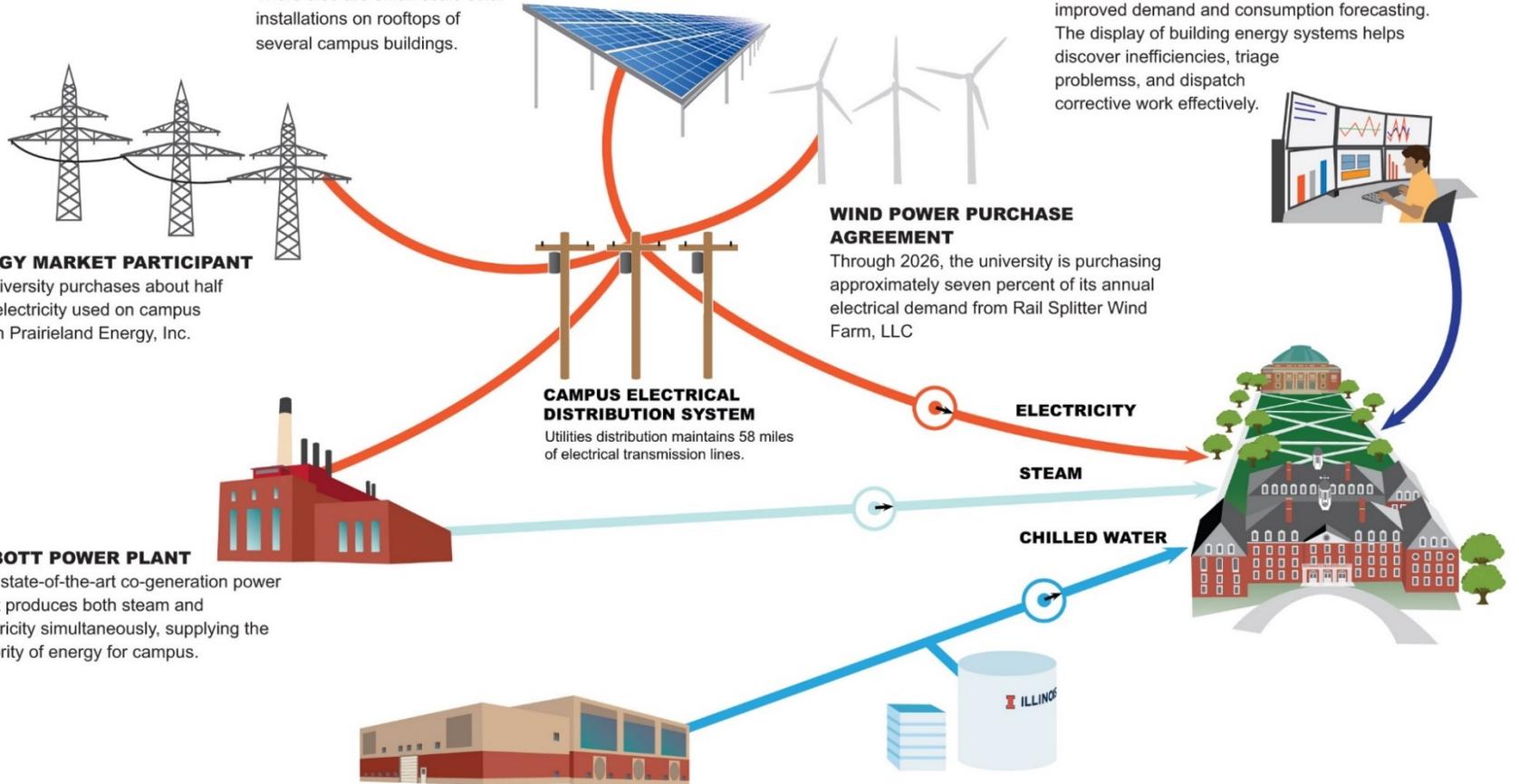
The university purchases about half of the electricity used on campus through Prairieland Energy, Inc.

**SOLAR INSTALLATIONS**

The Solar Farm produces about two percent of the annual electrical demand of the Urbana-Champaign campus. There also are small-scale solar installations on rooftops of several campus buildings.

**ENERGY MANAGEMENT CONTROL CENTER**

Integrated data and control systems deliver improved demand and consumption forecasting. The display of building energy systems helps discover inefficiencies, triage problems, and dispatch corrective work effectively.



**CAMPUS ELECTRICAL DISTRIBUTION SYSTEM**

Utilities distribution maintains 58 miles of electrical transmission lines.

**ABBOTT POWER PLANT**

This state-of-the-art co-generation power plant produces both steam and electricity simultaneously, supplying the majority of energy for campus.

**ELECTRICITY**

**STEAM**

**CHILLED WATER**

**CAMPUS CHILLED WATER SYSTEM**

Regional chilled water plants serve a central distribution system which provides cooling for the majority of buildings on the central campus.

**THERMAL ENERGY STORAGE TANK**

A 6.5 million gallon water tank allows cooling water produced at night (low cost) to be stored and used to serve air conditioning loads during peak demand.

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ACTION  
PLAN



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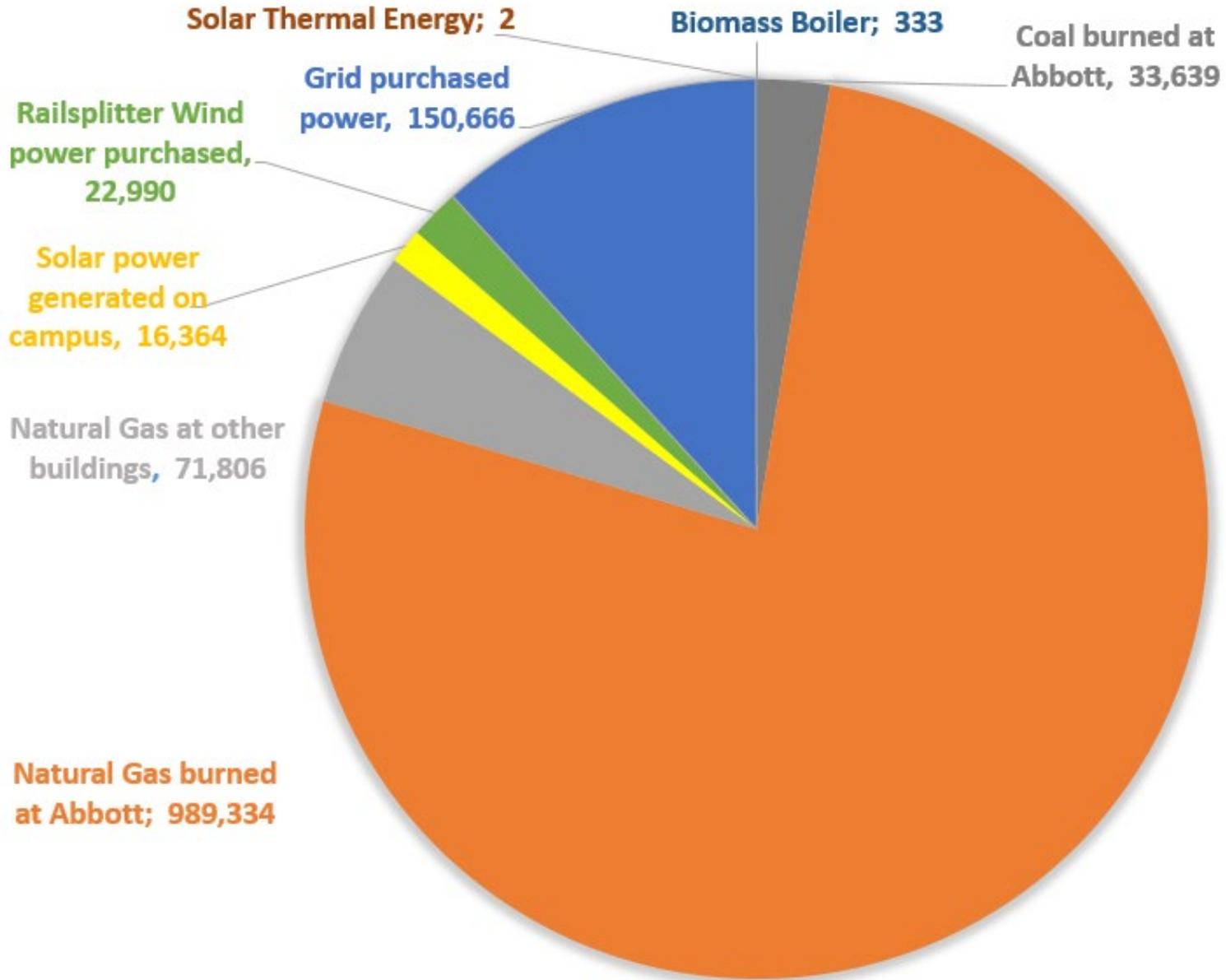
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## FY21 ENERGY SOURCES IN MEGAWATT-HOURS/YEAR



### Key Figures for FY21

- Total Energy = 1,285,133 MWh
- Clean Energy = 39,688 MWh (3.1%)

---Power is a subset of Energy---

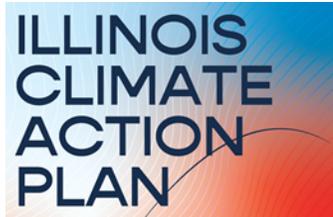
- Total Power = 414,449 MWh (32.2%)
- Clean Power\* = 39,353 MWh (9.5%)

\* only includes MWh with RECs owned by UIUC



# 2015 Utilities Production and Distribution Master Plan - Recommendation

- **Limit campus growth** to net zero GSF.
- Expand the current **energy conservation** program in conjunction with retrocommissioning.
- **Enhance best-in-class diversified fuel cogeneration plant.**
- Add variable speed chillers to central system.
- Promote heat recovery systems and energy reduction strategies on all new capital projects.
- **Increase the electric import capacity.**
- Pursue additional renewable projects and **renewable power purchase agreements** as opportunity affords them.
- **Purchase renewable energy credits.**
- Apply heat recovery chiller technologies in specific campus regions.
- Re-evaluate and apply best of industry energy supply in the 2030-2040 time frame.



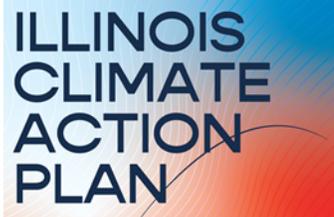
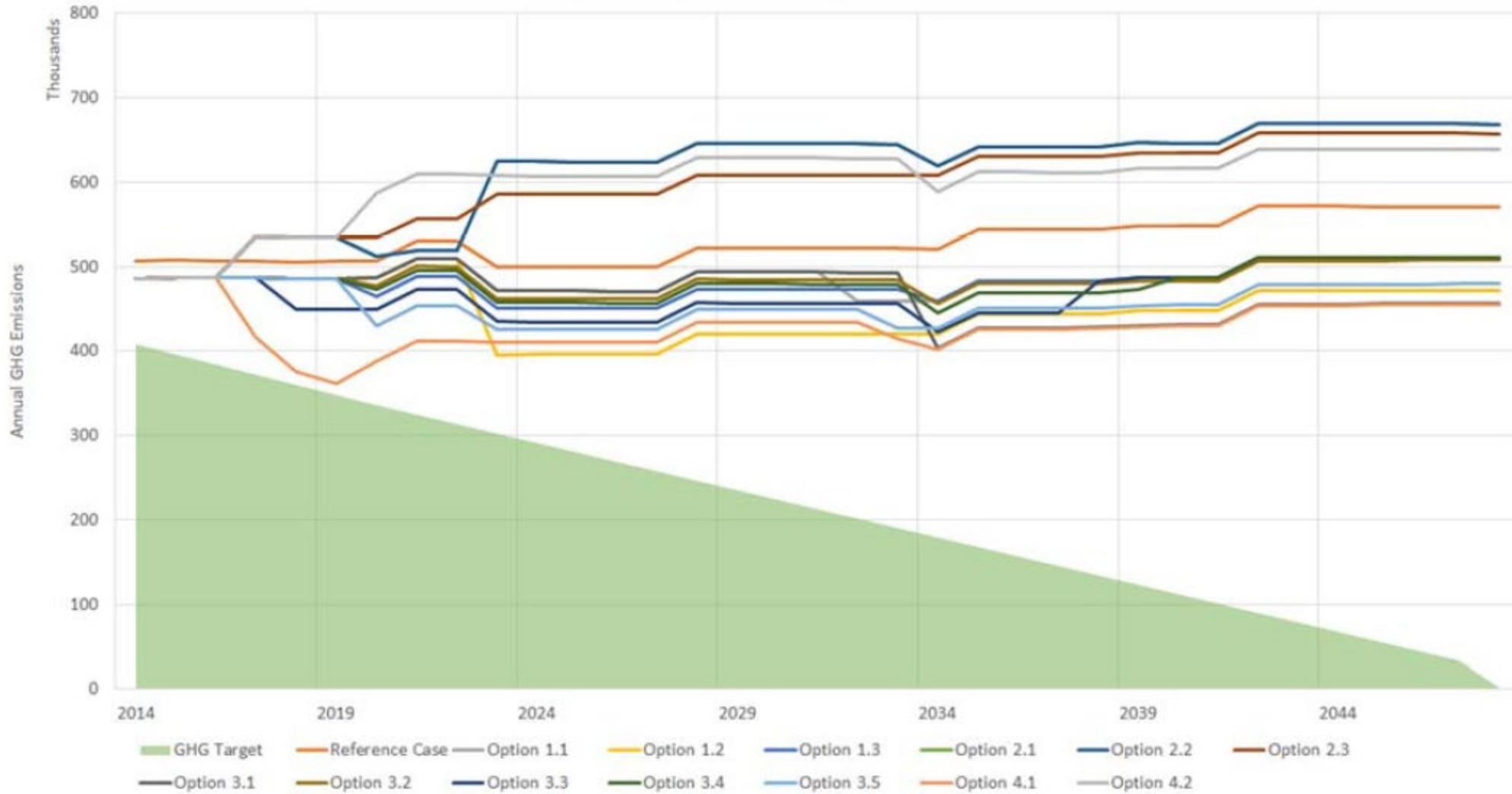
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Annual GHG Emissions by Option - No Growth

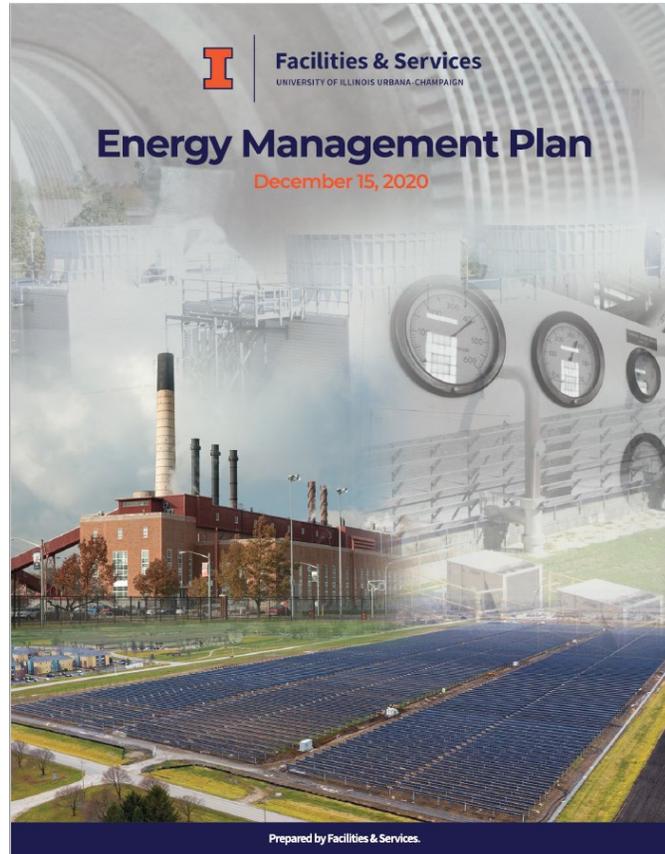


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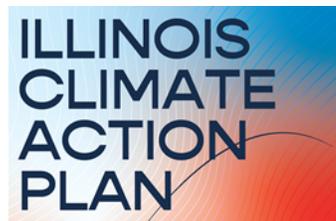


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# F&S Energy Management Plan



- Clean Energy and Energy Conservation Projects
- Planned Projects for FY21-FY26
  - Retrocommissioning (RCx) → 21,500 MWh savings
  - Recommissioning (ReCx) → 38,900 MWh savings
  - Energy Performance Contracts → 60,700 MWh savings
  - Supply Side Changes → 27,000 MWh savings
- Resulting Energy Impacts
  - 50% reduction in **Energy Use Intensity** by FY26



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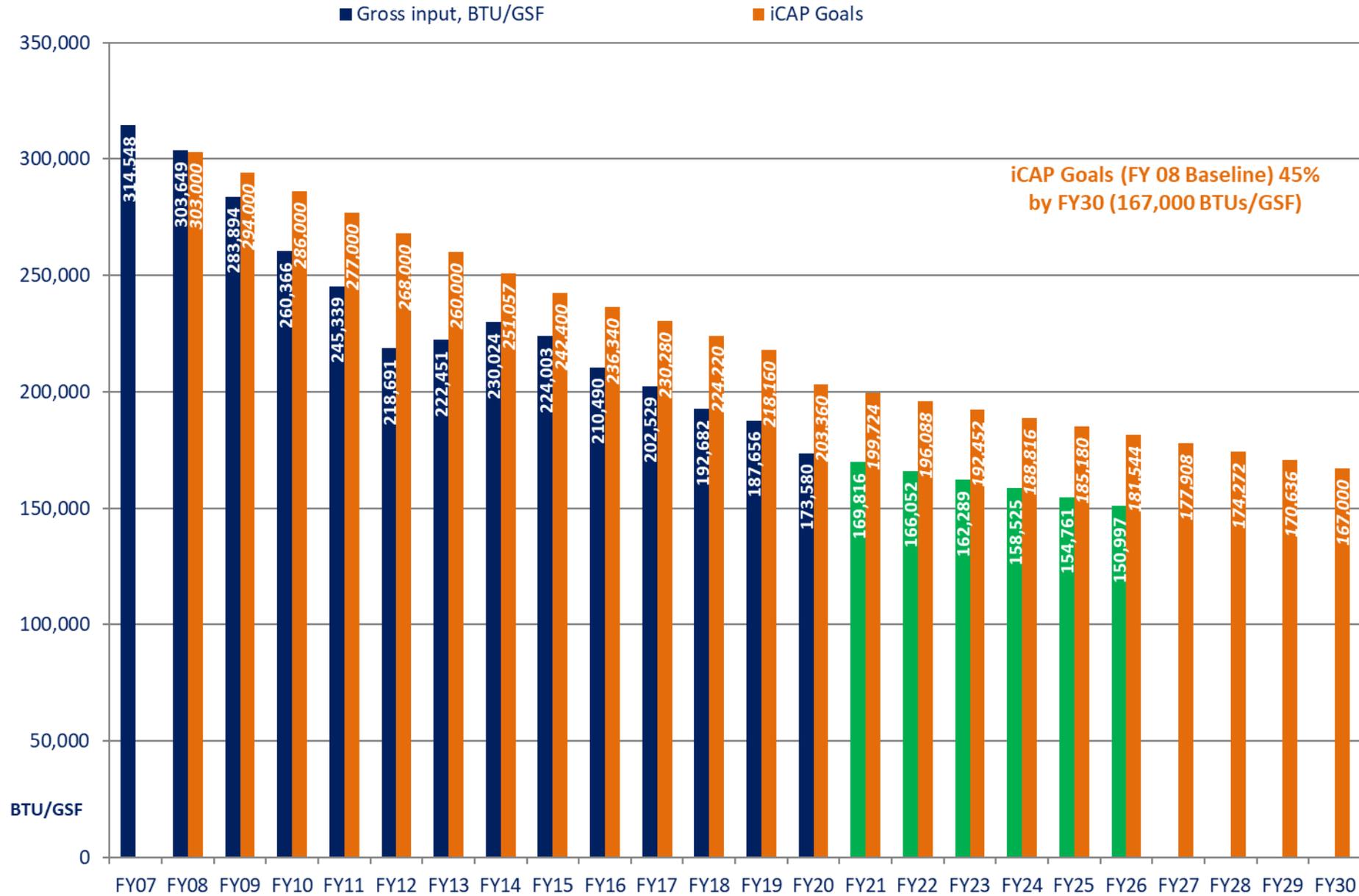


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# ENERGY USAGE PROJECTION AT URBANA-CHAMPAIGN

## Actual BTU /SqFt / Year (EUI) and iCAP goals



# We need to know the path forward



- Decision on strategic direction for meeting our Carbon Commitment
- Without just buying offsets and RECs
- Updated cost estimates, including energy conservation measures
- Holistic solutions rather than one-off projects – to achieve the goal by 2050 or sooner
- Approval/strategy to pursue funding for this overall analysis, estimated as \$1M

# Vet Med Parking Lot Redesign

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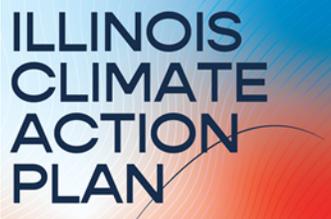
# Rainwater Problem



- Resilient Landscape Strategy 2019
- Lack of resilient rainwater management
  - Rainwater on campus is a source of downstream runoff/pollution
  - Leads to Gulf of Mexico hypoxic zone
- Inadequate and inconsistent funding
  - Stormwater utility charges are not covering the cost needed to improve infrastructure
  - Lack of funding and absence of designated entities on campus responsible for managing this problem
- Vet Med Parking Lot
- Dorner Drive Retention Pond

# Vet Med Parking Lot – LW002

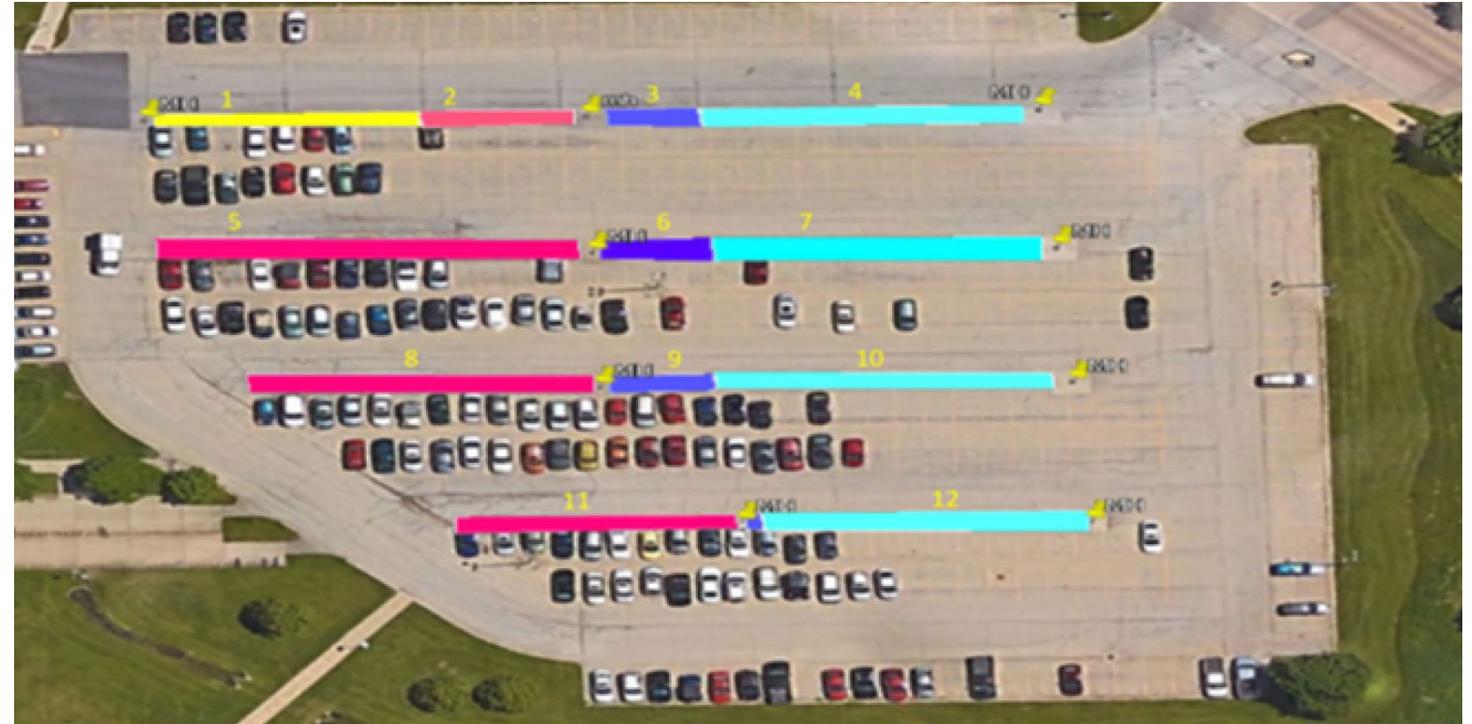
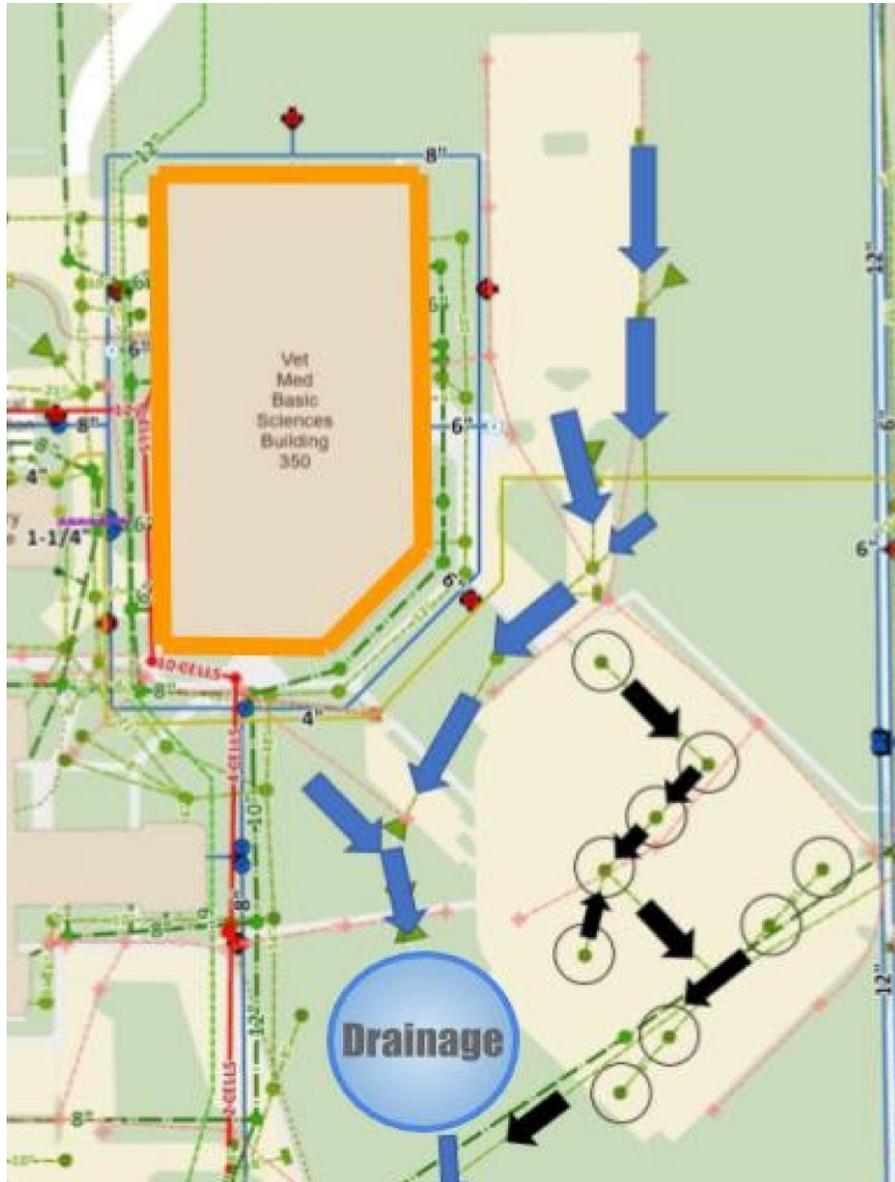




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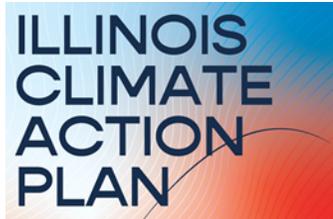


**Student design**



# Vet Med Parking Lot & Rainwater Issues

- More detailed assessment?
- Responsible entity?
  - Utilities
  - Grounds Department
  - Parking Department
- Funding options?
  - Campus funding, Vet Med funding, Parking Department funding, Stormwater Utility Fee funding from UES, Grounds funding



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# Priorities and Next Steps



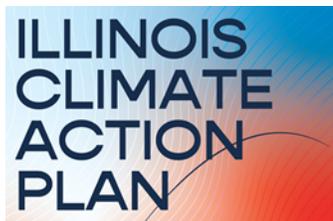
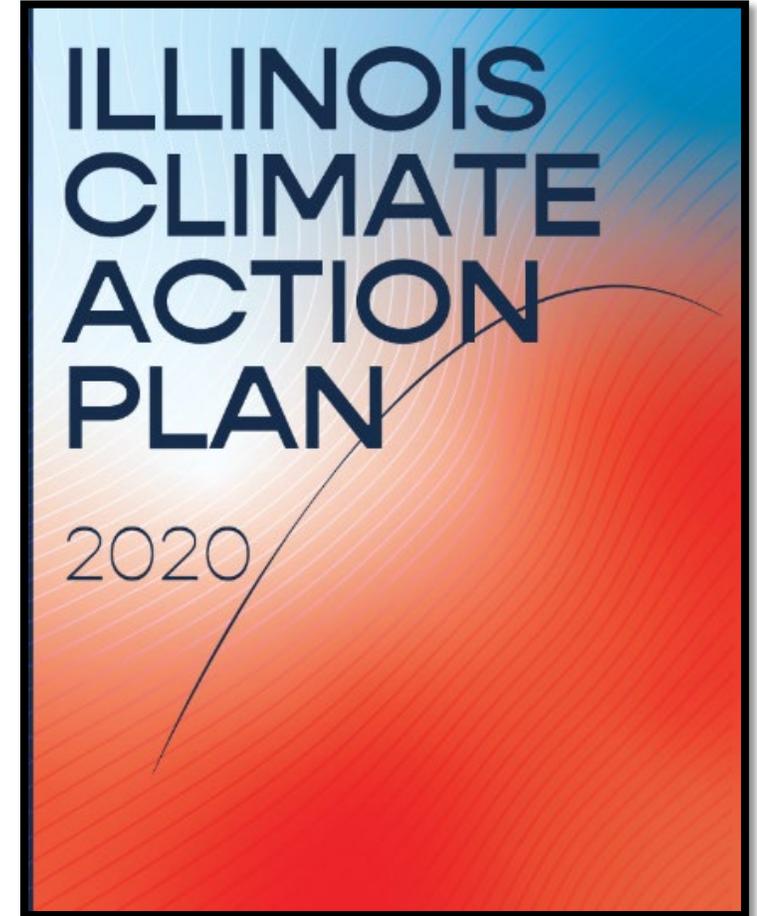
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# iCAP Priorities

- Achieving carbon neutrality by 2030 – 2050
- Zero-waste plan/recycling
- Divestment

## Pathway

- Include iCAP in Campus Strategic Plan

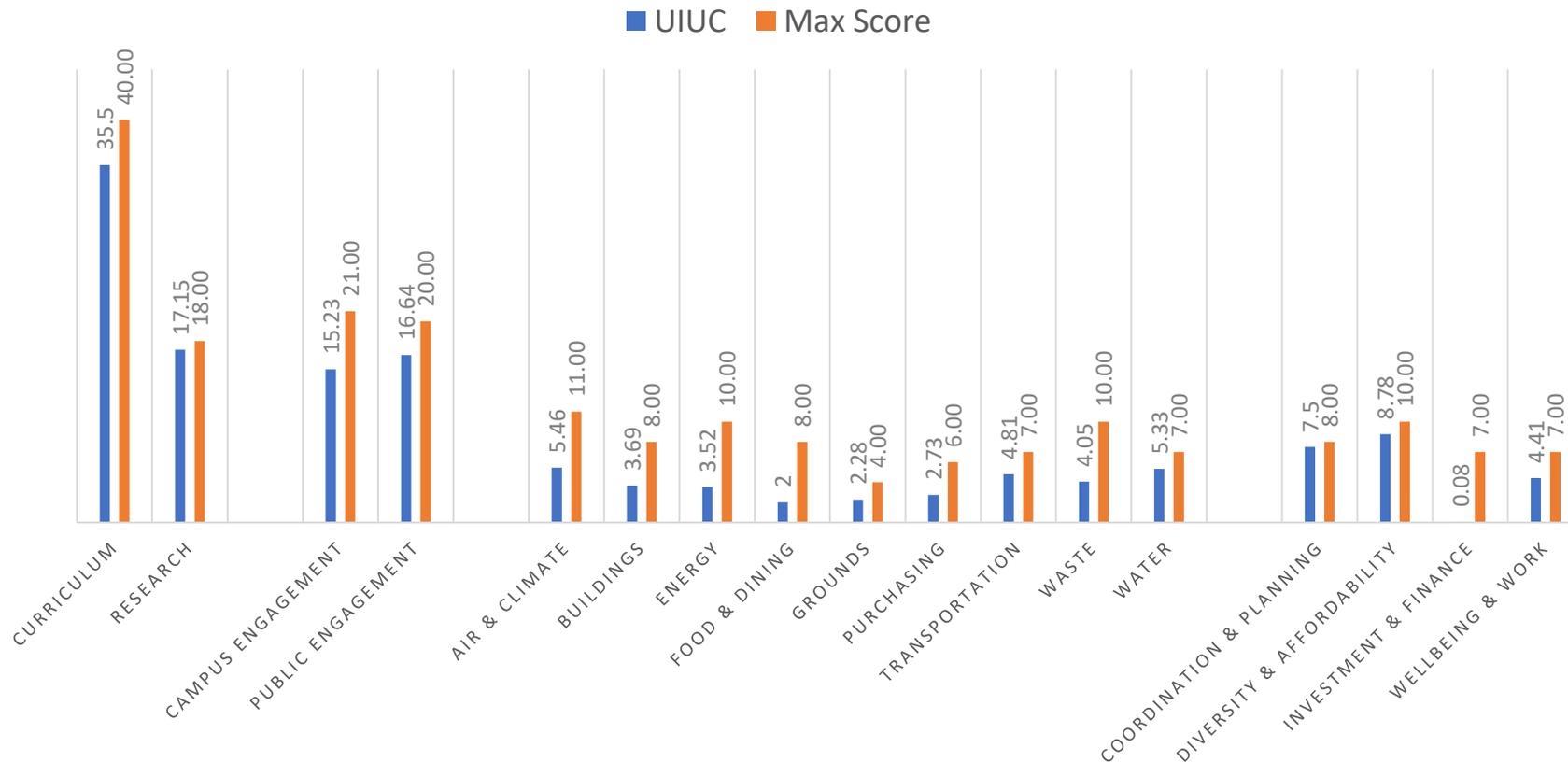


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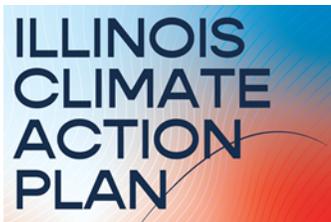


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# Achieving STARS Platinum



- Sustainability Tracking, Assessment & Rating System™ (STARS®)
  - transparent, self-reporting framework for colleges and universities to measure their sustainability performance
- We currently have 72.89 points and we need 12.11 more points
- There are currently 10 Platinum institutions



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**Wrap up – thank you!**



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