

# iCAP Working Group

Sept 2024 Meeting

**Date:** Sept 24, 2024

**Time:** 3pm-4pm CST

**Location:** [Teams](#)

**Attendees:** Jennifer Fraterrigo, Morgan White, Miriam Keep, Carl Bernacchi, Sandy Yoo, Jamie Singson, Natalie Reed, Brad Klein, Claire Keating, Jack Liong

## Agenda:

1. Discussion on Energy iCAP Objectives
  - a. Clean Energy Plan - Fits and starts in making the plan, now F&S is working on a plan that is an overview of clean energy technologies
  - b. Energy Use Intensity
    - i. Data excludes Petascale system
    - ii. Working on calculating data for FY23 and FY24
    - iii. Morgan: Retrocommissioning and lighting retrofit contributed to decline after FY08
    - iv. Includes all buildings (state-funded and auxiliary). Numbers represent gross energy input – what we burned and what we purchased, not consumption at building level.
    - v. Originally auxiliaries did not participate in retrocommissioning and recommissioning, over last 5-8 years the team led by Karl Helmink has encouraged auxiliaries to participate as well
    - vi. Some projects funded through Revolving Loan Fund, not sure what proportion are funded through Student Sustainability Committee
    - vii. Retrocommissioning currently most immediately impactful way to reduce emissions
    - viii. ESCO projects also very effective, but they are very capital intensive, so hard to do at scale
    - ix. As student population grows, Green Fund grows, but so does energy demand, demand for new space. Important to consider impact on our goals.
    - x. UES data shows that greatest energy demand comes from office space.
  - c. Space use efficiency

- i. Challenging as student population continues to grow. We have communicated the issue but don't have an answer.
    - ii. 2017 campus master plan shows we only need to increase space by 1.7%, but this was before our numbers escalated greatly. Need to revisit campus master plan to talk about how to minimize space per capita.
  - d. Annual energy consumption
    - i. While we have reduced energy use per square foot compared to baseline, our total energy consumption has not gone down as much.
    - ii. We wanted to work with each college to understand where they were in 2015 and work with each of them to cut total use by 20% or 1% per year until 2025. There was not much communication with colleges.
    - iii. Jen: Would be helpful to have a visualization to show colleges and inform objectives. This will help us understand if 20% across the board makes sense or if we need targets that are more specific to the college.
    - iv. Jamie: also plays into microgrid conversation, which is good for resilience and stability. Would be helpful to understand peak zones.
  - e. Use clean energy sources
    - i. FY23 and FY24 numbers are being collected
    - ii. iCAP Energy team data shows we are at 14% electricity usage in FY24
  - f. Clean thermal energy
    - i. Some challenges working with two systems in CIF: geothermal and district heating and cooling. This is why Wymer Hall has been designed for 100% geothermal. It has a connection to district system for back-up but this won't be turned on unless needed. Unfortunately the geothermal project in an Extension building was cancelled because the whole project came in way over budget.
- 2. New objectives
  - a. 2.1 – clean energy plan is in progress, and UES will present at the sub-council.
  - b. 2.2. – do we want to keep 20% energy reduction target across colleges?
    - i. Morgan: may need to reach out to colleges to understand what is viable. This is the same target as iCAP 2020. Need to communicate to colleges that this is the target.
    - ii. Refers to total energy consumption, not per square foot
    - iii. Carl: Want to push for stretch goals rather than what is easy to achieve. But it's important to understand what each unit is doing to know what is possible. Visualization would be helpful. To what extent is climate variability built into this? Can we integrate that into metrics to understand what drives change?
    - iv. Jack: College of engineering have tremendous amount of labs running all year, important to understand this impact.
    - v. College facilities contacts are not all aware of this target.
    - vi. Need data visualizations to understand what makes sense for each college.

- c. 2.2.3 – A microgrid would allow university to continue to run temporarily if we were disconnected from the grid. Now if we were cut off from grid we would have to turn off solar farms because we don't have regional storage.
  - i. Jamie: microgrid would provide more stability. Wonder if there is a way to keep and distribute energy from solar farm.
    - 1. Morgan: would need energy storage, still very expensive.
    - 2. Carl: what are costs of selling back to grid versus costs of energy storage?
      - a. Unsure. Thermal energy storage could be plausible financially.
  - ii. Morgan: currently GHG emissions from building new buildings not accounted for in our emissions inventory
  - iii. Sandy: bigger picture is the importance of data. Need to dig into details, won't solve problems if we stay at high level. Need to be prepared to make the best decisions.
  - iv. Jack: do we have info on what energy storage would be needed to keep university going off-grid?
    - 1. Morgan: will need to get more info, will come back to this.
- d. 2.3 use 15% clean energy
  - i. Same as iCAP 2020
- e. 2.3.1 use 140,000 MWh/year of clean energy
  - i. Same as iCAP 2020 – do we want to increase?
- f. 2.3.2 use 150,000 mmBTU of clean thermal energy
  - i. Same as iCAP 2020

Follow up:

- Work on developing more data visualizations to inform decision-making
- Gather more information on the microgrid as it relates to climate goals (Morgan)
- Gather input from all iWG members about stakeholders to engage in discussions on setting these objectives