iCAP Energy Team

September Meeting Agenda

Friday, September 24th, 9:00 A.M.

*Zoom*

* **Introduction**
  + **Name**
  + **Newcomer or returning member?**
  + **What are you most excited about this year?**
  + **What is a fun fact about you?**
* **Review of Meeting Objectives**
* **Understanding our role in implementing the iCAP**
* **Review of our charge letter**
* **Review of energy team objectives**
* Bill: A lot of the metrics that say “Develop X by Y” need to be looked at in a secondary manner compared to primary objectives
* Morgan encourages everyone to contribute to discussion
  + **2.1: Develop a comprehensive energy planning Document**
* Bill: The comprehensive energy plan was championed by a student who has now graduated. The context is that the University has a master planning process, but the previous plans proposed do not provide a road map to get to net-zero GHG by 2050. The purpose of our recommendation is to provide a document with enough power behind it to supplant the 2015 energy master plan and actually get us to net-zero by 2050.
  + **2.2: Reduce Energy Use Intensity**
    - **2.2.1: Improve efficiency of space use**
    - **2.2.2: Reduce the total annual energy consumption of college-level units (Building Envelope Pilot Project)**
* Morgan: we have seen immense progress in building energy retro commissioning. They have done over 80 buildings and have set up a follow-up team that goes back into completed buildings to ensure the changes are taking hold. A key aspect of Energy Efficiency is having a well-insulated building. The building envelope pertains to the walls and entryways of the buildings. We have a very old campus with “deferred maintenance” that is causing energy leakage. This project will take place at the transport building this fall. We are going to have this vendor do a thermal energy assessment on their own and then do a blower door test for the building. It will take a lot of blower doors and volunteers to complete this assessment, we are very happy to work with indoor climate research training on this. That is the status, a big part of this is to education F&S on energy saving opportunities through envelopes. We held a zoom with F&S long ago about intentions for this project.
* Bill: We are taking volunteers for the Building Envelope Pilot Project, OCT 16th starting in the morning.

**Discussion on Energy Use Intensity (EUI)**

* Bill: Energy Use Intensity (EUI) is energy divided by Square Footage. There are two kinds of energy we deal with: energy delivered from Abbot power plant for university to use, and site energy, the energy consumed by buildings. EUI is usually source energy over square footage. This can be made to look better by increasing square footage. Source energy has been going down which is good, but it has plateaued since 2019.
* Paul showed a graph of university wide EUI that shows us consistently reducing EUI until we jumped back up in 2020.
  + Yun: how does the verification of EUI work, will we get more details on EUI?
  + Bill: Recommendation 005 asks for more modeling for energy code compliance, but the overall aim is for how to improve the energy performance of a particular building. If you are asking how we improve 005 it is with your help as an architect.
  + Yun: How would we be able to find the reason behind the recent EUI increase
  + Morgan: We have guesses, that it may be due to air purification related to COVID. We have replaced hundreds of thousands of filters with stronger filters for HVAC, we have added new purifiers in rooms, we have spaces where we tell occupants to have windows open. All of these cause significant differences. There’s a lot of things frequently changing due to the pandemic that makes it hard to pin down the exact cause. Do we count petascale?
  + Bill: petascale is a supercomputer using 11% of total campus energy. It has been excluded from a lot of energy analyses until 2018 when I came in and asked it to be included in all analyses.
  + Matthew: What is the energy used for?
  + Bill: Data processing and cooling technology.
  + **2.3: Increase the use of clean energy sources**
    - **2.3.1: Use at least 140,000 MWh/year of clean power by FY25**
    - **2.3.2: Use at least 150,000 MMBTU/year of clean thermal energy by FY30**
  + Damon: clear photovoltaic panels instead of glass is an amazing new technology that we should be using. I have shop drawings on the tech and am working with a professor, we are trying to produce some class projects that will generate data.
  + Damon noted there are mock-ups online that can be shared with students and other interested groups.
  + Andy notes that the nuclear research group is working on new proposals.
  + Tim notes that the biomass energy project is currently at its capacity, burning half of the material they produce while saving the other have for different purposes. He notes that they are looking at tapping into wood waste for biomass, and that they have received truckloads of poplar wood chips from Argonne lab in Illinois
* **Determination of our goals to focus on this year**
  + **Recommendation Wishlist**
* Paul: lets gain traction on what we have already submitted
* Bill: input from everyone is incredibly important for committee progress. I expect our comprehensive energy plan to go forward for it to be successful. We need to recognize how much energy is used by every building and what improvements can be made. We have an energy dashboard through the iCAP, but I don’t think it is very useful, we should expand it to as many buildings as possible with in depth specifications of the energy history of a building to make recommendations from an operational point of view on what investments are needed in which buildings.
* Damon: I like to look at behavioral analysis, how do we bring the F&S community up to speed with energy use, how do we change behavior of people on campus
  + Bill: The U of I is hosting all facilities and mechanical engineers at a presentation in November on how to improve engineer interactions with occupants
* **Discussion: Qualitative and Quantitative highlights for Illinois.edu**
  + Not any ideas yet, key challenge will be communicated the complex energy projects and terminology in an easily digestible manner.
* **Discussion: iCAP Energy Team Assessment**
  + Bill and Andy will take the lead on completing the assessment
* **Discussion: iCAP Celebration**
  + Shannon and Matthew will present the slides from the assessment at the iCAP Celebration
* **General Discussion**
* **Adjournment**