**ECBS SWATeam Meeting**

February 22nd, 2019

TBH 115

2pm - 3pm

**Attendees:** Bill Rose (chair), Karl Helmink, Paul Foote, Andrea Martinez, Taylor Holin (clerk)

1. Approval of last meeting’s minutes
2. ECBS Draft Plan for Spring Semester 2019 (Bill Rose): <https://docs.google.com/document/d/1ABAwqC9_DHzWjplaO81VctJM_AjWQNuFWP_gPEGotkk/edit?usp=sharing>
3. Membership Discussion
   1. Currently one vacancy, will have two by the end of the semester
      1. **ACTION ITEM**: Email Ximing Cai about student recommendations (Bill Rose, Taylor Holin)
4. Discussion of the behavioral side of energy conservation (Bill Rose/Andrea Martinez)
   1. This side is just as important
   2. Solar and wind are intermittent, not constantly dependable
      1. If we want energy at any given time, we just expect it to be available
   3. Need to prepare the population for variability (unless batteries develop)
   4. Unknown in regard to behavior and people
   5. How do we get from where we are to where we need to be (behaviorally)?
   6. People who want and can pay, it’s there; But what about everyone else?
   7. Hypotheticals
5. EBS Web -- ebs.illinienergy.edu (eDNA Billing System) Discussion
   1. Website (Karl Helmink)
      1. Building example: Everett
         1. Good example of a building provided with capital (under $1 million)
         2. Point: Rate of change
            1. FY19: ~$300,000
            2. Good payback (straight capital project)
            3. Retrofitted
            4. Envelope changes: new windows, roof, expansion of building
      2. Example of older buildings (Beviere, Henry Administration, etc.)
         1. Intervention: Major remodeling
         2. Good to give levels of energy savings per level of investment for future projects
         3. Reason for intervention: not on energy saving list, space usage primary motivation
         4. Example of how with investment, we can save energy
      3. Building Example: Materials Research Lab (ESCO)
         1. Was $1.4 million and moved down to $1.1 million, on track to being cut in half (~$800,000 minimum)
         2. ESCOs have an expected payback period, a guarantee
         3. Mechanical, not envelope changes
   2. Energy modeling (Bill Rose)
      1. Biggest improvements with air tightness
      2. Bill would like to move in that direction (up for future discussion)
      3. Done in BIF; research project of energy assessments and air tightness in Platinum LEED buildings, BIF had a lot of leakage
      4. Getting a handle on mechanical upgrades and their impact
         1. To get all lines showing reduced energy
         2. Introducing another level -- Building envelope?
      5. Proposal to set up a meeting with iWG/Morgan to talk about recommendation (Karl Helmink)
6. Review of meeting with Purchasing, Waste, Recycling SWATeam (Bill Rose)
   1. PWR had a proposal to use proximity sensors as a way to save energy in buildings
   2. Result: it’s already in our standards and it covered their concerns
   3. Since it’s in the standards we can expect that they’re in any new, ESCO, or retro-commissioned building
   4. Concern: is it being implemented?
   5. Expressed interest in continuing to work with PWR SWATeam with a primary interest regarding construction waste
      1. Currently we pull out metals and everything else goes
      2. Some places take drywall
      3. Area of potential interest
7. Discussion of ESCOs and Retrocommissioning (Karl Helmink)
   1. Funding issues
      1. iCAP content website (handout from Bill Rose)
         1. “With a capital investment of $151 million, we can have a reduction”
         2. The recommendation was sent back because there wasn’t monetary source outlined in proposal
         3. Amount needed to be evaluated
   2. Energy outcomes (e.g. Everitt and MRL)
   3. Resubmitting the recommendation
   4. Including the envelope (Bill Rose)
8. Defining “the campus” for iCAP purposes (Bill Rose)
   1. For the iCAP, when they say “0 greenhouse gases for the campus” what buildings should we really be tracking?
   2. Currently there isn’t a firm grasp as to what the “campus” is defined as
      1. A lot of different databases for campus
      2. Varying definitions
   3. Morgan White provided a list of buildings by number with square footage
      1. 4,500 buildings stretching all over the place
   4. Morgan White recommended that UIUC owned buildings (rather than leased) that are within the University District (cuts off at Windsor but includes Orchard Downs, up to Beckman) as the designated campus that the iCAP is concerned with
      1. Term used by cities of Urbana and Champaign
      2. Fits into database
   5. Revised definition of “campus”: UIUC University District
      1. Purchased buildings should be included since we are responsible for the energy (Bill Rose)
      2. Definition is complete and simple
      3. 900,000 new square footage with change
      4. 10.7% increase in square footage between 2008-2019
   6. Problems:
      1. Handout regarding Petascale (Bill Rose): <https://drive.google.com/file/d/17uDbRYWKxYoSHzobt6H4vLBiGYzQeIdG/view?usp=sharing>
         1. Fiscal years on left hand side of table
         2. Total is total number of million BTUs
      2. Look at Petascale (1244) - came online in 2013 (fully)
         1. 10% of campus energy
         2. Chilled water numbers for Petascale, change, number?
         3. Generation of negative numbers (providing rather than consuming)?
            1. Facilities with negative energy consumption: Abbott, North Campus Chiller Plant, Library Chiller, Vet Med AC Center, Animal Science AC Center, Petascale, TBH?
         4. What are the large numbers from (2016)?
         5. What buildings are we talking about and how do we deal with energy transformation which is a grey area? (Bill Rose)
         6. We’re not clear where we’re at at this point -- is it worth the effort to make it clearer?
            1. Should work on defining
            2. Petascale coming offline in a year and a half
            3. iCAP 2020
            4. Wait?
      3. Main chart being used is energy supplied/square footage
         1. Don’t have a clear image of square footage
         2. When Bill did it, he got 10% greater
         3. Corresponding numbers?
         4. Adding new information but not changing old information
         5. Wrapping everything up
      4. **ACTION ITEM**: Meeting with F&S group to talk about this
9. Discussion of energy standards for new buildings (Bill Rose)
   1. Development of good energy standards (Tom Keller)
   2. Not much time to improve standards, but how are we doing on compliance on the standards?
      1. 10% of buildings comply with submittals
      2. 90% of buildings do not
      3. There needs to be a change regarding compliance
         1. Take the building as it is (sq footage planned, where it’s located, internals, stories) plug that into a prescriptive model where every window, roof, equipment, etc. has to meet a certain standard. Even if it doesn’t match at the end, the prescriptive part still provides an Energy Cost Budget (ECB)
      4. With the ECB, run numbers again according to the facility standards and mandate that the building has to come in at 20% less than the ECB
      5. ECB is the starting point - therefore there must be one for every building
   3. Review submittals of 6 different buildings, looking to find an ECB; Examining the compliance level (Bill Rose)
10. Discussion of recommendation
    1. Energy Conservation Funding through Energy Performance Contracts with Energy Service Companies. (New in 2018): <https://drive.google.com/file/d/1tyAZ_KBbdNqQBlHz77spssvVRtfRHGMG/view?usp=sharing>
    2. **ACTION ITEMS**: re-submit a revised version of our previous recommendation
       1. Provide responses, work on drafting the recommendation (Bill Rose, Karl Helmink)
       2. Work with Ximing Cai and Morgan White (talking session with working group)
    3. Main issue to discuss and consider: Funding (SAIC Report)
       1. Look at numbers, and see what we can do with proposed amount
11. **ACTION ITEMS**:
    1. Email Ximing Cai about student recommendations (Taylor Holin, Bill Rose)
    2. Revise and work on new recommendation (Bill Rose, Karl Helmink)
       1. Meet with Ximing Cai and Morgan White to discuss
    3. Review and add input to Chapter Evaluation Sheet (ALL)
       1. <https://docs.google.com/document/d/1YE5T1y9nj_2kXuAzGRFdBz1qEaa3e5mpCNCpFrqlVMs/edit?usp=sharing>
12. Next Meeting:
    1. TBD - before spring break
    2. Poll to be sent out