

Applying Building Technologies to Realize Savings

Thursday, June 16, 2016 10:30am

Susan Freed (County of San Diego)

Topic: Zero Net Energy at the County of San Diego (Library building)

- About 12 years to get ROI, utility bills are basically zero
- Building for the long term – 50 year lifespan for buildings
 - Preparing now for 2030 50% energy reduction mandate for existing buildings
 - New buildings now are being built with 2030 in mind
- Building lot – take into consideration when planning ZNE
 - Library plot is fortunate to have good north/south exposure to take advantage of natural lighting
 - Passive technologies
- Building function plays a big factor in ZNE feasibility
 - Loads of buildings, water usage, plug load
- Best Practices
 - Model early
 - Balance EE with other projects that have equal or more value – ex children’s story time program funding has precedence over efficiency projects
 - Maximize passive technologies
 - Lighting power density, daylighting
 - Fine tune sub-metering to really understand where the energy is being used M&V
 - M&V scrutiny - Added attention to energy use
 - Train staff on how to operate building
 - ZNE is not free - hire a good consultant helps design best possible product
 - Total cost to build was 5% higher than non-ZNE design
- Q+A
 - Why did you go with the Design-Build model?
 - Design-Build is more expensive but best for ZNE projects.
 - How do you avoid the “point trap” when getting LEED certified?
 - Created own LEED scorecard and included it in the RFP
 - Wanted specific credits for gold building status, instead of just simply having gold status

Jim Parks (Sacramento Municipal Utility District)

Topic: SMUD Net-zero Operations Campus

- Existing facility was very old and in need of many improvements
- Moved to a totally new lot after train tracks were built through middle of previous location
- Best Practices:

- Incorporate unique characteristics of the location into plan
 - Ex: Geothermal cooling pipes installed in low areas of location
- Plan for long term: Built new facility ready for future EV charging stations
- Monitor energy use once building is operational
 - Many tweaks had to be made to get facility to actual net-zero status
 - Ex installing light timers and training staff
 - Monitoring especially important for large buildings with many lights/technologies

Alice La Pierre (City of Berkeley)

Topic: How to Build Healthy, ZNE Buildings without Anyone Noticing

- How to do ZNE upgrades discretely to get around political roadblocks and pushback
- West Berkeley Library
 - Installed an EV charging station as a way to use up excess energy
- Upgrading existing buildings is important because you cannot tear down and rebuild everything
 - Ex - Historic Buildings
 - Mental Health Clinic case study
 - Many problems with infrastructure, ZNE upgrade was a way to fix problems with aging infrastructure and implement energy upgrades
 - Best Practices with upgrading old buildings
 - Start with energy monitoring to understand energy consumption
 - Commissioning ZNE study is helpful
 - ZNE best for 1-2 story buildings and smaller size because of roof to load ratio
 - “Building envelop” is critical - older walls and insulation are sources of energy loss

Garrett Wong (City of Santa Monica)

Topic: Smart Controls for Energy Efficient Lighting in Existing Buildings

- Lighting is the easiest low-hanging fruit to consider for 2030 pre-planning
- Consider the existing infrastructure: new LEDs fit seamlessly into T12 fixtures
- New lighting control and sensor technology helps with planning
 - Individual sensor for each light to monitor lighting demand for each light separately
 - Wireless controls can be controlled from a laptop - customize lighting levels for the whole day
- People’s behaviour is an important consideration
 - Manually turning lights on/off interrupts pre-planned lighting controls
 - Cleaning crew turns on all lights a highest level creating spike in electricity use at beginning and end of the day

- Keep track of how lighting is used in the building
 - Allows for easy changes in future for rearrangements of furniture, additional employees, etc.

(Ran out of time - no questions at end)