GreenerU Webinar

September 16th, 2014

Thanks to Chris MacNevin for compiling these notes!

Brandon Geller, FAS Green Program manager (Harvard)
Quentin Gilly, Lab Sustainability Coordinator
Developed a Holistic Sustainability Plan
Green house goal (GHG) emissions reduction of 30% by 2016.
Multiple Components: Waste, purchasing, transportation, green building standards
Lab space: 23% sq. footage but 49% energy use
For an effective program:

1. Energy efficiency first (e.g. fume hoods) - $250K/yr avoided energy cost
2. Focus on payback, cost savings
3. Meet researchers where they are.
4. Create tools/resources that can be easily adapted to individual needs of a given lab.
5. Collaborate for maximum impact (with EHS)

Ultralow Freezers were next after fume hoods - 16 – 22 kWhs or $1K /yr
Freezers, clean coils. Got a third-party to do coil cleaning and maintenance.
Offered as a service, part of it was a review of freezer preventative maintenance. Suggested fixes
De-icing kits offered: rubber mallet, ice scrapers, insulating gloves, magnet with best practices
Incentive program funded by Energy Fund. Given a $3K rebate, based on higher price of the system.
Stirling model SU780U endorsed 7 -10 kwh vs 16 - 22. Made sure third-party used for cleaning was trained in fixing the Stirling system. Lot less moving parts in the Stirling.
7 yr payback, have 5 now, 3 to be purchased. The payback is what funds the rebate $3K/7 yr
Provide tracking sheets, could be a map or spreadsheet macro - minimizes search time, open door time.
Regular clean out, defrost. (What do you do with samples during defrost?)

Encourage reuse: online Reuse list, have reuse room gathered together 2x/yr for people to get stuff
see green.harvard.end/lab for list
Collect styrofoam if it comes with a return envelope will send back
Safety: reusable biohazard waste containers.
UV lights in biosafety hoods. Evidence supports that they are not that effective. Lower exposure to UV light is good.

Bill Spratt (WPI)
Analyzed energy use building by building - chose biggest energy user
Funding: investment from the university. $1.8 million in total, utility incentive was $1.2 million. Payback was 2.6 yrs total. Relied heavily on utility incentives
Contracted with ECT, Inc and National Grid.
Lab Safety assessment and energy audit
Identified 12 measures (?)
Evaluated fume hoods individually based on specifications and uses. Base on number of air changes per hour. Can have as low as 4 changes per hour, some had over 20.
Greener AND safer: Many air changes can cause air turbulence in the hood, can bounce back out into the hood.
Used a green, yellow, red coding system for hoods based on hazard level – played into air change rate.

Walked through labs with PI. Low tech sign for survey with stickers.
Were able to reduce hood fans from 3 fans to 2, with 4 total: total redundancy now.
Added controls, converted from simple low/high to variable air volume controls based on height of hood.
Dynamic static pressure reset
Installed two 75 kW engines, used heat from engines to offset boiler load
Extensive fluorescent and LED upgrades and lighting controls.
Monitoring 1400 building automation points (BAS points)
Achieved 33% reduction in kw usage, also safer conditions
Lessons learned: Focus on safety (not necessarily energy), get stakeholder involvement, maintaining communication for coordinating shut down (did during break in semester). Have 2 or 3 dates. Do a trial lighting retrofit to make sure it works.
Involved EHS, department heads critical; also researchers, facilities. Had a kickoff meeting.

David Adamian - GreenerU organization (David.A@GreenerU.com)
Focus on behavior change theory.
Bring in stakeholders, people in building are the experts. Need to know reality of how building is used everyday.
How do you make it big and widely accepted? A big event, such as Freecycle, lab yard sale.