

Energy & Buildings: Encouraging Sustainable Use

NNECERAPPA Conference
October 21, 2011

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Presentation Overview

- The Energy Puzzle: Technical vs. adaptive challenges
- “Tier I” energy outreach – why these steps fall short
- Elements of effective behavior change programs
- Examples of programs
- Next steps for facility managers

The Energy Challenge

Technical challenges

Solutions are known

Proven techniques can be applied

Solutions can often be implemented quickly with simple decision-making

Technical work is done *by* experts or authorities *for* people

Requires change in just one or a few places

People are generally receptive to technical solutions

Adaptive challenges

Solutions are diffuse

We must learn new techniques to solve

Solutions require changes in values, beliefs, roles, relationships, & approaches

Must inspire and enable change *in others*

Usually requires change across organizational boundaries

People often resist new roles that go along with adaptive challenges

“Tier I” Energy Outreach Steps

- Opening ceremony/press announcing design features
- Light switch stickers
- Electronic displays
- Plaques
- Tours
- Emails/memos
- Posters
- Others?

Elements of Effective Behavior Change Programs

1. Address barriers

- Information alone doesn't work
- Changing a paradigm requires persistent and thoughtfully planned programs linked to clearly defined goals
- Sub-metering: what gets measured gets managed and this applies to behavioral programs as well; people want feedback about the impacts of their efforts
- Inconvenience and lack of knowledge about building systems

Elements of Effective Behavior Change Programs

2. Build a program using community-based social marketing concepts

- public commitment
- prompts
- communication/messaging
- social norms*

- ✓ Gain a commitment
- ✓ Use a smaller initial request
- ✓ Written is more effective than verbal
- ✓ Make it public
- ✓ Encourage groups to commit together
- ✓ Involve people in an action (changing light bulbs, shower heads, etc.) to prompt other actions

Elements of Effective Behavior Change Programs

2. Build a program using community-based social marketing concepts

- public commitment
- prompts
- communication/messaging
- social norms*

- ✓ Use as a reminder, not motivator
- ✓ Make sure they are explicit
- ✓ Self-explanatory
- ✓ At the point of action

Elements of Effective Behavior Change Programs

2. Build a program using community-based social marketing concepts

- public commitment
- prompts
- communication/messaging
- social norms*

- ✓ Make it vivid, concrete, and personalized
- ✓ Avoid:
 - Catastrophic climate scenarios
 - Saving polar bears
 - Jargon
 - Precious pictures (hands holding a plant)
 - References to loving the earth
- ✓ Target:
 - Making healthy choices
 - Being involved in community
 - Saving money
 - Impact of personal actions
- ✓ Use a credible source

Elements of Effective Behavior Change Programs

2. Build a program using community-based social marketing concepts

- public commitment
- prompts
- communication/messaging
- social norms*

- ✓ People will act in alignment with the predominant social norm – so present the actions you wish people to follow
- ✓ Esp. true in unfamiliar situations
- ✓ Esp. influenced by people similar to us
- ✓ Use models (highlight or train and plant) so that behaviors are visible
- ✓ Back up the norms with communication and prompts

Elements of Effective Behavior Change Programs

3. Recognition & Feedback

→ Don't forget this step!

Program Examples

Energy Competitions (using Lucid Building Dashboard)

Bowdoin College

EcoOffice Staff Energy Challenge

Student Energy Challenge

Bowdoin residence halls take serious bite out of campus CO2 emissions! 8th Annual Energy Conservation Dorm Competition

Final Results
Oct 1 – Oct 30, 2009
The dorm competition is based on the kilowatt hours used in each dorm, divided by the number of people living in the dorm. For the category of best First Year dorm + Affiliated College House we added the kWh/person scores from each residence together and divided by 2.

Dorm # of residents	kWh used	kWh/person	Final Results
Coleman Hall – 86	8,216	95.5	1 st
Wintthrop Hall – 58	5,669	97.7	2 nd
Moore Hall – 72	7,350	102.8	3 rd
Maine Hall – 61	6,465	106.8	4 th
Hyde Hall – 72	10,759	149.4	5 th
Appleton Hall – 61	10,454	171.4	7 th
Other Hall – 74	12,761	172.4	6 th
West Hall – 79	14,521	183.8	8 th

House # of residents	kWh used	kWh/person	Final Results
Reed House – 29	3,247	112.0	1 st
Burnett House – 23	3,226	140.3	2 nd
Howell House – 27	3,972	147.5	3 rd
Heinreich House – 23	3,557	154.7	4 th
Baxter House – 32	5,489	171.3	5 th
MacMillan House – 26	4,771	183.5	6 th
Quincy House – 24	4,773	198.9	7 th
Ladd House – 22	6,879	312.7	8 th

Dorm # of residents	kWh used	kWh/person	Final Results
Howard Hall – 60	7,545	125.8	1 st
Coles Tower – 206	41,584	206.7	2 nd
Stowe Hall – 53	11,413	215.3	3 rd
	940	258.2	4 th
	152	287.4	5 th

kWh/person	Results for first 2 weeks
26.9	1 st
119	2 nd
89.5	3 rd
60.75	4 th
8.25	5 th
77.5	6 th
61.5	7 th
2.55	8 th

What the numbers don't show:

- 16 of the 21 dorms used less kWh per person in the second half of the competition than they did in the first half – WOW! That says a lot about people's energy conservation habits, considering we lost roughly one hour of daylight over the course of the competition. The winner of the **Most Improved Second Half** award goes to Appleton Hall.
- The electricity usage in October for all residences (dorms and houses) was 22% below last year's usage – and was the lowest October electricity usage of the past 5 years!
- That additional 22% savings of electricity is equal to 50.4 Metric Tons of CO2 equivalent – or put another way – that's the equivalent of the carbon dioxide emissions from burning 5,717 gallons of gasoline.

Each person's individual actions have added up to big reductions in greenhouse gas emissions – keep up the great work!

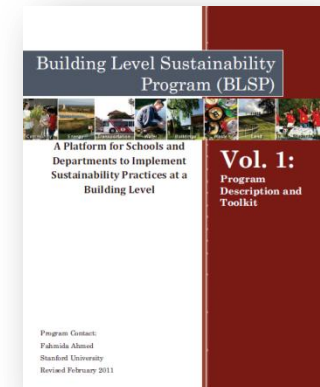


Program Examples

Office & Dorm Room Audits/Certification

Stanford University

[Building Level Sustainability Program \(BLSP\)](#)



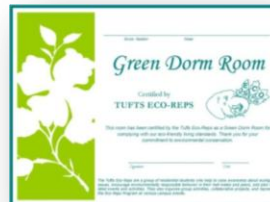
Boston University

[Green Office Certification](#)



Tufts University

[Dorm Room Certification](#)



Program Examples

Pledge programs

Bates College

[Do One Thing campaign](#)



Boston University

[Carbonrally challenge](#)



Next Steps for Facility Managers

1. Propose a paradigm shift:

While it is the responsibility of the institution to provide efficient equipment and facilities that afford a safe and comfortable living and learning environment, it is the responsibility of the campus community to operate equipment and facilities efficiently and only when needed.

2. Work with your sustainability coordinator and campus committees to develop an EcoRep and EcoOffice program

3. Develop a long-term energy conservation program with both technical and adaptive components that

- Addresses barriers to energy conservation on your campus
- Uses social norms to engage people in behaviors that shape new norms around energy use
- And report back to the campus community with recognition and impact of changes (personal and around new norms)