Significance and objectives

- Energy feedback in residences results in 5-15% energy savings, very limited research about occupants in commercial buildings
- Previous CBE research revealed interest among occupants in energy feedback, and interest among “energy experts” in better communication capabilities

Objectives

- Evaluate how a social media application, on the scale of a single commercial building, can provide benefits such as:
  - Encouraging energy-saving behavior among occupants
  - Helping building managers to communicate with occupants and improve operations
Concept diagram

Energy feedback (example, Lucid Design)
• Valuable for charting energy use, comparison to benchmarks, providing feedback to users

Social media (example, Facebook)
• Valuable for communication, coordinating community activities, and sharing information

Social media application for energy and operations

• Prototype dubbed the “GreenNetWork”
• Combines building energy and operations features and with typical social media features
Research method

- Develop simplified prototype illustrating key features

Occupant testing

- Evaluate prototype with 50-100 test subjects representing typical office workers, at XLab facility at UC Berkeley

Managers/expert testing

- Evaluate with building managers, via one-on-one interviews

Research questions

**Occupant study to study potential effects:**

- User-specific energy information vs. whole building or zone level
- Energy display in terms of power, kWh, cost, or other metrics (e.g., lightbulbs)
- Social normative information, such as average use, or selected individuals
- Sharing personal energy info (self-reported goals and/or measured energy use)

**Operator study, to study potential benefits:**

- Better communications with building occupants
Recent progress

- Prototype design mostly complete
- Detailed study protocol, questionnaires, and x-lab forms complete
- Submitted to committee for protection of human subjects (CPHS)

Social media application overview

[Diagram of social media application]
Energy goals
- Set and track goals (self-reported)
- Reward system based on badge icons
- Share goals and progress with others
- See progress of others

Billboard
- Report problems, questions, and tips
- View, comment, and respond to postings
- Operators can respond to questions, send announcements
- Occupant survey options
Energy charting
- Compare metrics (kWh, cost, other equivalents)
- Individual vs. whole building
- Compare to averages and other individuals
- Ability to share and comment

Next steps

**Project tasks**
- Complete prototype design
- Conduct occupant user tests at XLab facility
- Conduct operator/expert interviews
- Present poster at CHI 2011
- Write final report and papers

**Future/related work**
- New field study project on feedback in commercial buildings to start in summer, 2011, funded by the California Air Resources Board (CARB)
- Plug load study, see proposal #8 in booklet
- Possible follow-up to info visualization event