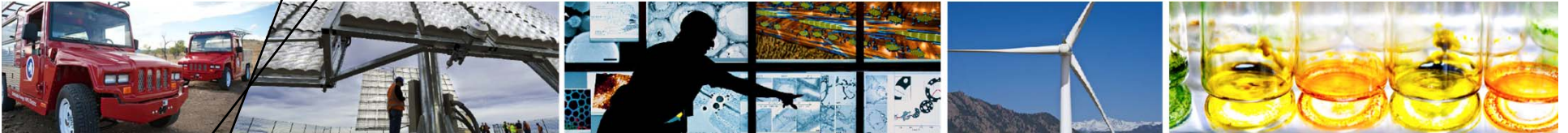


AHEM Standing Technical Committee Meeting



Building America Stakeholder Meeting

Lieko Earle and Bethany Sparn

February 29, 2012

Role of BA Standing Technical Committees

- allow the BA program to actively engage relevant industry stakeholders in the research planning process
- focus on identifying key technical issues required to meet BA program goals
- Committees include:
 - experts from DOE
 - BA research teams
 - national labs
 - industry organizations that offer specialized knowledge in the topics being addressed

AHEM STC – 2011 Wrap-Up

Strategic Plan completed based on gaps and barriers identified last year:

1. Energy Savings / ROI Insufficiently Quantified
2. Lack of Consumer Awareness of AHEM Products
3. Low Interest in Managing Energy Use
4. Complexity of AHEM Products

→ Where can Building America research make the greatest impact?

→ What aspects of these gaps are better targeted by the AHEM product manufacturers?

AHEM STC Google website

<https://sites.google.com/site/bastcahem/home>

- To-do list for AHEM STC
- Announcements
- Finished files and working documents
- Calendar for all STCs and AHEM STC
- Meeting minutes

AHEM and Building America

AHEM research, like all Building America research, must be **SMART**:

Strategic

Measurable

Actionable

Relevant

Timely

→ Need to define **SMART** goals based on identified gaps & barriers

Further Focusing AHEM STC in 2012

- Optimize energy use by collecting the most useful information about the house and occupants.
- Sensors and controls work together to gather relevant data, process the information, and implement control strategies that **maximize comfort and convenience** for the occupants and **minimize energy consumption and cost**.
- We seek to identify gaps in existing technology for sensors and control systems and the research required to maximize the effectiveness of their interactions.

Emphasis is on novel applications of sensors and controls that minimize cost and maximize energy savings.

AHEM and the Home System: Integration

- AHEM is not an isolated topic – it relates to all systems in a home.
- Need input from experts in all areas of Building America and the building industry to identify where more advanced sensors and controls would benefit their work.
- For example, sensor-based HVAC diagnostics to alert homeowner to performance degradation:
 - What sensors and how many are required?
 - Can this be done cost-effectively?
 - Where are alerts sent (phone, IHD, computer)?
 - What communications protocol is used? Will need new standard for different errors.

Examples for Sensor Topics

Sensor Communications

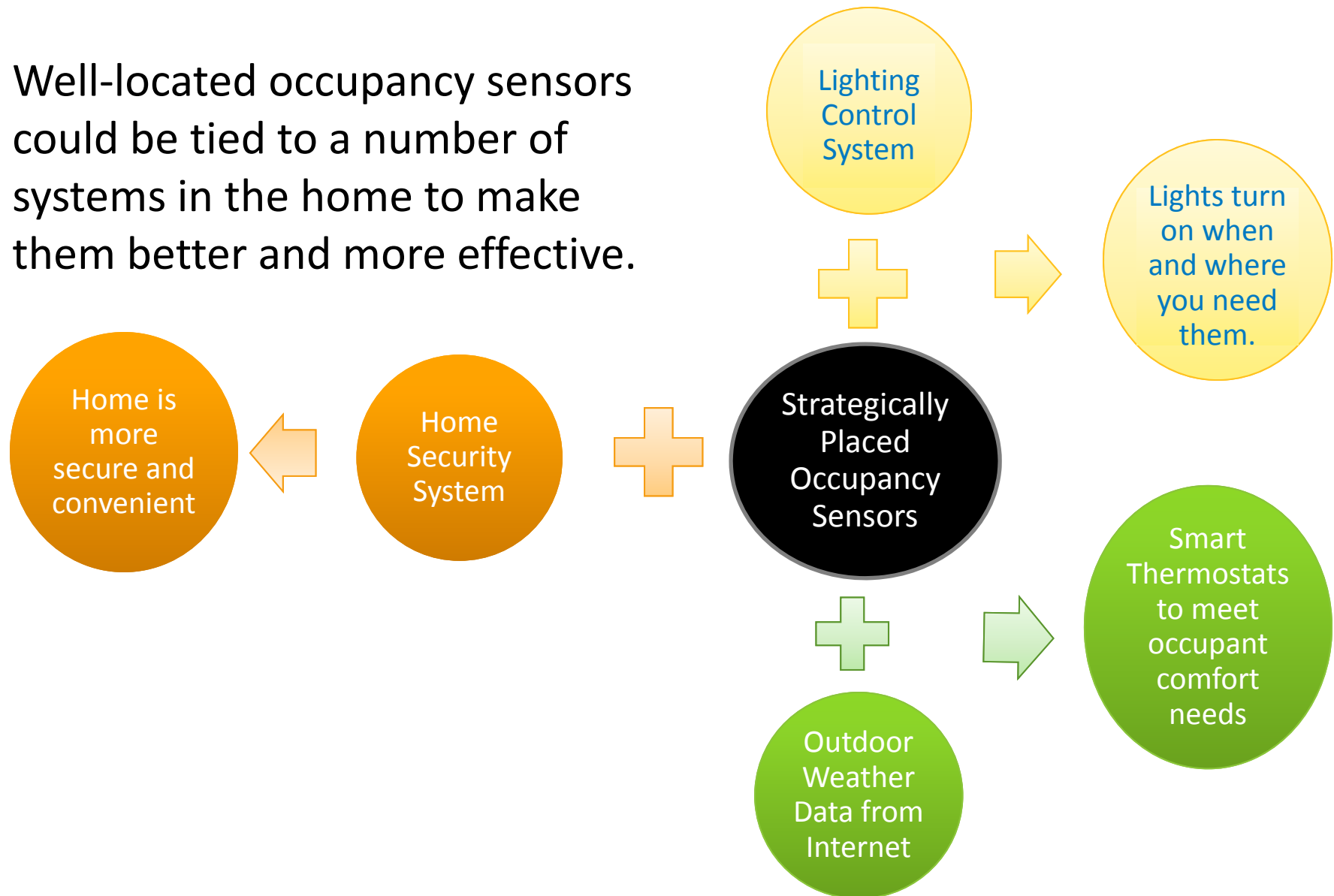
- Can sensors send their signals wirelessly to a central controller without interfering with other wireless devices (wireless internet router, cell phones, etc.)?
- What are the advantages and limitations of various communication protocols most commonly used for AHEM?

Sensor Locations

- For every type of sensor (occupancy, temperature, lighting, etc.), where should they be placed to minimize number needed?

Examples for Sensor Topics

Well-located occupancy sensors could be tied to a number of systems in the home to make them better and more effective.



Examples for Controls Topics

Light Sensors

- What is the most cost-effective way to control lights and/or shades?
- How does high-efficacy lighting change the cost-benefit economics of lighting controls?

Utility Peak Pricing

- What control strategies can be implemented to reduce peak energy use around the house?
- What is the best heating/cooling schedule to optimize comfort and cost during TOU pricing?

Miscellaneous Electric Loads (MELs)

- What combination of sensors and controls could be used to eliminate the electricity wasted by MELs around the house?
- How can the standby energy use be reduced without inconveniencing the occupants?
- When energy saving potential per device is small, what is the maximum cost of the device that makes the measure cost-effective?

AHEM STC in 2012

- Lots of exciting work to be done in AHEM.
- Stay focused on technical work that is actionable and where results of research are measurable.
- BA's technical focus complements efforts of behavioral experts.
- Continue to monitor developments and needs throughout AHEM industry to help accelerate progress.

Questions and Discussion

- **Begin brainstorming new gaps and barriers...**