Higher Education Breakout Session

Monday, May 9th from 2:00 – 3:15 PM
Room: Columbia 2
Level: Lobby

Agenda

- 2:00 Welcome & Introductions
- 2:20 Program Updates, New Resources & Activities
- 2:35 Sector Priorities Discussion
- 2:45 Solutions Sharing Discussion
- 3:15 Adjourn

Welcome & Introductions

Better Buildings Team Members:

Harry Bergmann
DOE
Data Tools
Fellow

Holly Carr, DOE
Partnerships

Sultan Latif
DOE
H ED Lead

John Jameson
ICF
H ED Account
Manager

Steering Committee Members (2014-2016)

- Susan Corry, University of Maryland, Chair
- Chuck Frost, University of California, Berkeley
- Joan Kowal, Emory University
- Kathy Ramirez Aguilar, University of Colorado, Boulder
- Faramarz Vakili, University of Wisconsin
- Susan Vargas, Stanford University
- Jose Varona, University of Miami
- Jeff Wrigley, University of Utah

2016-2018 Steering Committee Nominations can be submitted to bba@ee.doe.gov by **June 15th**

Program Updates

U.S. DEPARTMENT OF ENERGY

Better Buildings 2015 Snapshot

Better Buildings Challenge Snapshot, 2015

Partnership	
Number of Partners and Allies	310+
Square Feet Represented	4.2 billion
New Partners in the past year	60+
Solutions	
Partner Solutions Available for Replication	400+
Results	
Energy Saved (Btus)	$161 trillion
Dollars Saved	$1.3 billion
Avoided $C0_2e$ emissions (tons)	10.1 million
Funding Committed/Placed	$5.5 billion / $5.4 billion
Water Savings (gallons)	2.1 billion

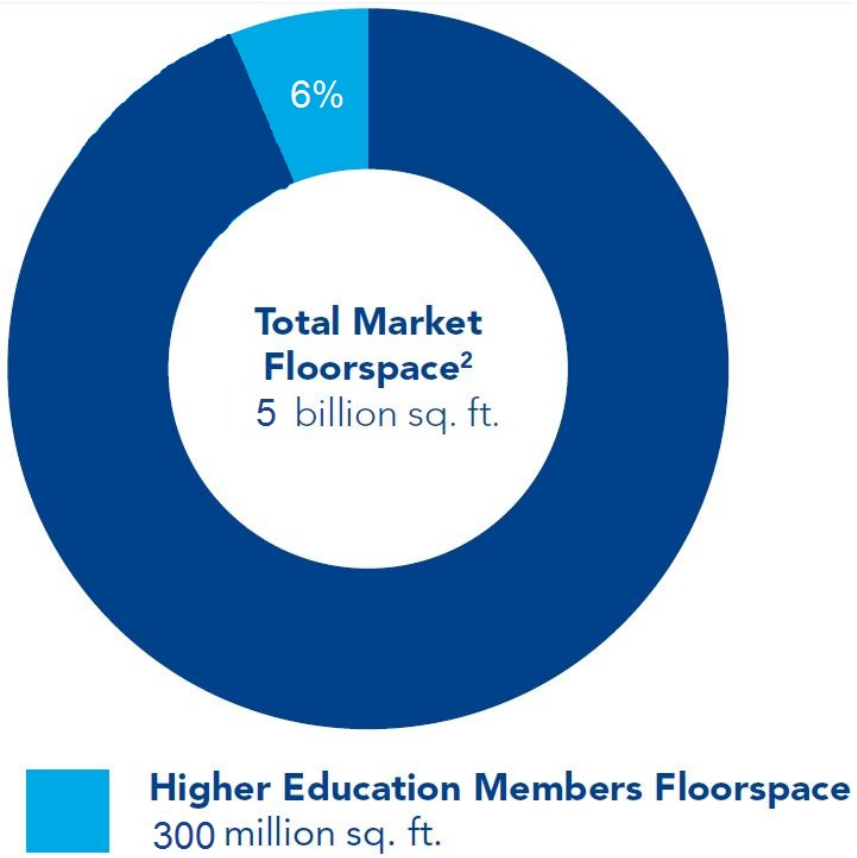
Better Buildings Alliance Snapshot, 2015

Membership	
Number of Member Organizations	202
Square Feet Represented	11+ billion
Percent of U.S. Commercial Buildings	13%
New Partners and Affiliates in 2015	19
New Resources Developed	
Business partners, technology and procurement specifications, user guides, rebate resources and case studies	40+

BBA Sector Snapshot

- 29 members who own, lease, or manage 300 million square feet of space.

Higher Education Members as a Percent of Market Floorspace



New BBA Members in 2015

NORTHWESTERN
UNIVERSITY

MICHIGAN STATE
UNIVERSITY

UNIVERSITY OF UTAH
HEALTH CARE

New BBC Commercial Partners in 2015

NORTHWESTERN
UNIVERSITY

General Program Updates

- **Annual Progress Update Reports**
  - Better Buildings Alliance – 2016 Winter Progress Update
  - Better Building Challenge – 2016 Progress Report
- **New Better Buildings Challenge Implementation Models**
  - Water Hub– Emory University
  - Tying Energy Costs to Building Occupants– UC Berkeley
  - Better Buildings Challenge SWAP

Technology Team Update

- New Resources Relevant to Sector:
  - Solar Integration Case Studies
  - Business Case for Proactive Advanced RTU Replacement
  - A Primer on Organizational Use of EMIS
  - Decision Guides for Plug and Process Load Controls
- Advanced Roof-top Unit (ARC) Campaign
  - Awards presented at PRSM national conference in April
- Interior Lighting Campaign (ILC)
  - Awards to be presented at BOMA national conference in June
- LEEP Campaign
  - Awards to be presented at Greenbuild conference in October

Smart Energy Analytics Campaign

The Smart Energy Analytics Campaign promotes the adoption of analytics software and ongoing monitoring

Join the Campaign to receive

- Energy Management and Information Systems (EMIS) best practice resources and technical support
- Peer-to-peer learning network focusing on EMIS technology topic areas
- Recognition for exemplary performance

What does Campaign Participation look like?

- Participants pledge to install or use existing EMIS to analyze data and identify energy-saving improvements

www.smart-energy-analytics.org

BOMA International · IFMA International Facility Management Association · ComEd An Exelon Company powering lives · BCxA Building Commissioning Association · CACx Commissioning Collaborative

Campaign is delivered in partnership with Better Buildings U.S. Department of Energy

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New Webpage!

Better Buildings®
U.S. DEPARTMENT OF ENERGY

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Better Buildings Initiative » Better Buildings Alliance » Higher Education

Sector: Higher Education

The higher education sector spends an estimated $6.5 billion on annual energy costs and totals about 5 billion square feet of floorspace. Through the Better Buildings Alliance higher education group, 29 colleges and universities representing over 300 million square feet of space are sharing best practices and engaging with technical experts to advance their energy savings goals.

Summit Sessions of Interest

- Is the Second Time the Charm? Higher Education Success Stories with ESPCs
  - Monday, May 9th – 3:45 to 5:00pm
- Make Space! Curbing Campus Growth and Using Space Wisely
  - Tuesday, May 10th – 11:15am to 12:30pm
- From Numbers to Action: Using EMIS to Detect Problems and Fix Them
  - Tuesday, May 10th – 2 to 3:15pm
- Engaging Building Occupants: How to Reduce Plug Load Energy Use
  - Tuesday, May 10th – 11:15am to 12:30pm

Sessions of Interest (continued)

- Embedded Data Centers
  - Tuesday, May 10th – 3:45 to 5:00pm
- Saving Energy in Labs: The Chief Energy Consumer
  - Tuesday, May 10th – 9:45 to 11:30am
- Combined Heat and Power (CHP) for Resiliency
  - Wednesday, May 11th – 3:45 to 5:00pm
- Integrating Distributed Generation with Energy Efficiency Programs
  - Tuesday, May 10th – 2:00 to 3:15pm

TONIGHT! Sector Networking Event

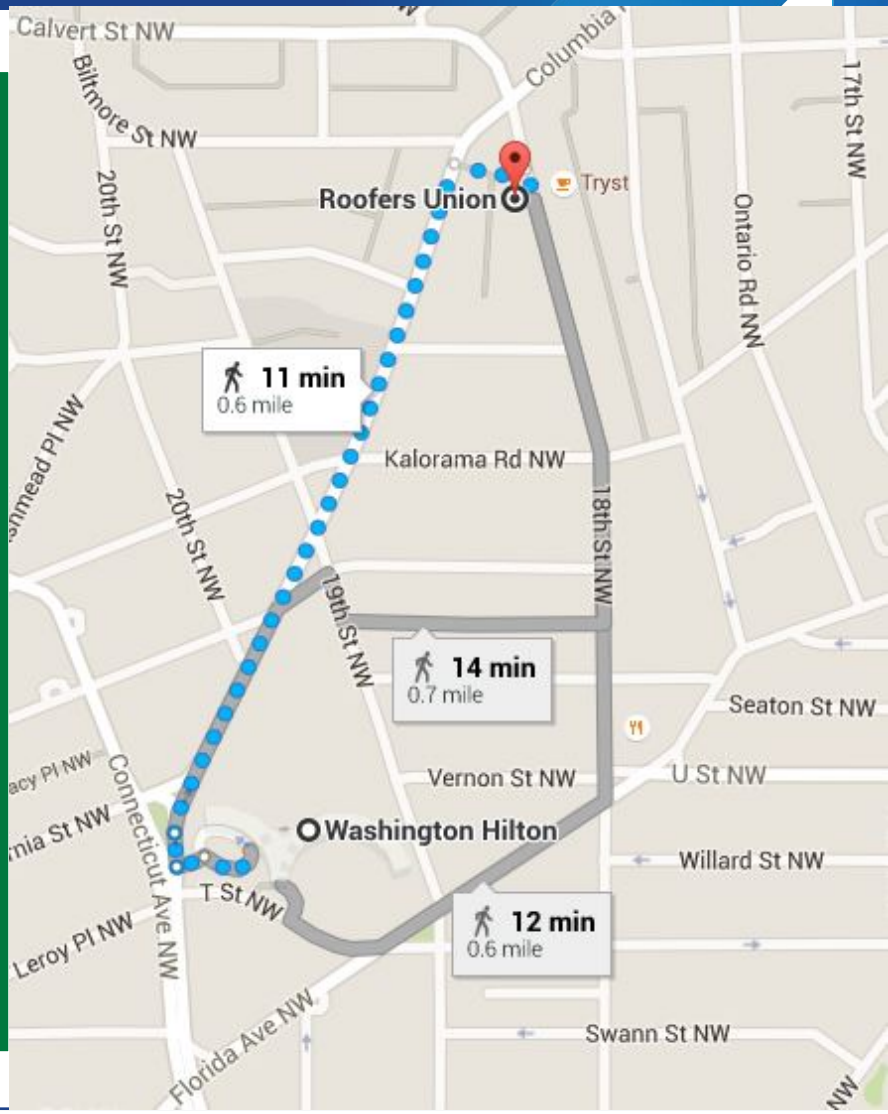
TONIGHT!

5:30pm

Roofers Union

2446 18th St

Washington, DC 20009



Better Buildings

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Sector Priorities Discussion

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Sector Priorities

- Priority 1: Continuous Commissioning & Controls Optimization
  - Progress: Fault Detection & Diagnostics webinar, ASHRAE Guideline 36, Smart Energy Analytics (SEA) campaign
- Priority 2: Facilities Benchmarking through Building Performance Database
  - Progress: March 25th Meeting with UNH & sector stakeholders
- Priority 3: Addressing Campus Growth
  - Progress: December Peer Exchange, Summit Session, Campus Growth 1-pager

Solutions Sharing Discussion

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TOWSON UNIVERSITY

Towson University

SHOWCASE PROJECT
Athletic Fieldhouse

ENERGY PERFORMANCE
View details on Towson University's progress to date

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CHALLENGE COMMITMENT

5

Million Square Feet

GOALS

20%

Reduction in Energy Intensity

PROGRESS

18%

Cumulative (vs. Baseline)

Integrating Solar PV

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Showcase Project: Health Professions and Athletics Center

SECTOR TYPE
Education

LOCATION
Wye Mills, Maryland

PROJECT SIZE
100,000 Square Feet

Your time.Your place.
Chesapeake College at 50

Annual Energy Use
(Source EUI)

Baseline (ASHRAE Standard)	180 kBtu/sq. ft.
Expected (2016)	124 kBtu/sq. ft.
Actual	Coming Soon

Energy Savings:
31%

Annual Energy Cost

Baseline (ASHRAE Standard)	$161,000
Expected (2016)	$71,000
Actual	Coming Soon

Cost Savings:
$90,000

Building Occupant Engagement

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Home » Solutions » Implementation Models » Tying Energy Costs to Building Occupants

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ORGANIZATION TYPE
Public University

GOAL
To cost-effectively deliver a program that actively manages and engages the campus community in reducing energy use, and saves $2 million in annual energy costs

BARRIER
The school's biggest energy consumers – 46,000 students, faculty, and most staff – had no framework to understand or be informed about the energy impacts of their behaviors, especially since utility costs were administered centrally

SOLUTION
The Energy Management Initiative (EMI) solves this issue by targeting building occupants through building surveys and energy dashboards, and allocating energy cost responsibility to individual campus operating units.

OUTCOME
The EMI has achieved savings of $6.5 million, 58.7 million kWh and 893 thousand therms in just three years.

Implementation Model:
Tying Energy Costs to Building Occupants

Berkeley
UNIVERSITY OF CALIFORNIA

OVERVIEW
Home to more than 27,000 undergraduates and more than 10,000 graduate students, Berkeley is internationally renowned for excellence and pioneering achievements across all disciplines. Berkeley's research strength includes expertise in addressing pressing global challenges in the areas of health, energy, and the environment. In 2014, US News & World Report ranked six Berkeley graduate programs —chemistry, computer science, English, history, public policy, and sociology — No. 1 in the nation.

More

Water Hub

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ORGANIZATION TYPE
Private University

GOAL
To reduce Emory's potable water demand in the fast-growing Atlanta region

BARRIER
Atlanta has the smallest watershed in the nation for a metropolitan area of its size, with numerous water-related stresses including severe drought potential, critical infrastructure failures and an extended political dispute over water rights

SOLUTION
Emory University's Water Hub uses on-site, adaptive ecological technology to reclaim up to 400,000 gallons of campus wastewater daily

OUTCOME
Potable water consumption has been cut as much as 35 percent, saving millions of dollars over a 20-year period while improving campus operations and opening new opportunities for education and research

Implementation Model: Water Hub

EMORY

OVERVIEW
Emory University, located on approximately 700 acres in DeKalb County, Georgia, is a top-tier institution recognized for its medical school and various professional programs, as well as its commitment to environmental sustainability. Over the last decade, sustainable water management has become a critical issue for the metro-Atlanta region, which has struggled with drought, legal disputes over water supply and EPA consent decrees on water quality issues. As a pioneer, community leader and home of the world renowned Center for Global Safe Water, Emory is seeking to comprehensively address local and global water challenges. The WaterHub project is an innovative, on-site solution designed to treat and reuse up to 400,000 gallons of water per day, and decrease potable water demand by over 1/3.

More

Thank You

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