Better Buildings Webinar Series

We'll be starting in just a few minutes....

Tell us...please send your response to the webinar organizers via the question box:

How are you involved in Better Buildings?

- BBA Partner
- BBC Partner
- Both BBA and BBC
- Neither Just Gathering Info
- Other (please specify)









Agenda

3:00 Welcome and Introductions

3:05 Better Buildings Alliance Overview and Program

Updates

3:15 Sector Priorities and Activities

3:35 Technology and Market Solutions Opportunities

3:55 Get Involved





Welcome & Introductions

Better Buildings Team Members on Today's Call:



Holly Carr
DOE

BETTER BUILDINGS
PARTNERSHIPS, RETAIL LEAD



Cindy Zhu
DOE

COMMERCIAL REAL ESTATE
LEAD, MARKET SOLUTIONS



Andy Mitchell DOE



Sultan Latif
DOE

FOOD SERVICE, HEALTHCARE,
AND HIGHER EDUCATION LEAD

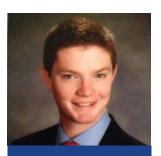


DOE
TECHNOLOGY SOLUTIONS



Zach Abrams

RETAIL ACCOUNT MANAGER



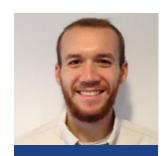
Jacob Dowling

COMMERCIAL REAL ESTATE ACCOUNT MANAGER



Samantha Stafford

HEALTHCARE AND HOSPITALITY ACCOUNT MANAGER



John Jameson

HIGHER EDUCATION ACCOUNT MANAGER



Prithvi Acharya

FOOD SERVICE AND GROCERY ACCOUNT MANAGER





Alliance Steering Committees

Better Buildings Alliance Steering Committee Chairs, 2016-2017





HIGHER EDUCATION

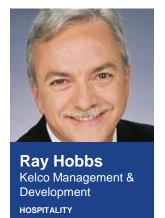


Medical Center

HEALTHCARE









International

HOSPITALITY







Better Buildings Program Updates



Better Buildings Alliance: How is it organized?



Commercial Real Estate



Food Service, Retail, and Grocery



Healthcare



Hospitality



Higher Education

MARKET SOLUTIONS TEAMS



Energy Efficiency Project Financing



Leasing and Tenant Build-Out



Energy Data Access



High Performance Property Valuation and Mortgages

TECHNOLOGY SOLUTIONS TEAMS



Lighting & Electrical



Space Conditioning



Plug & Process Loads



Refrigeration



Energy Management Information Systems



Renewables Integration



NEW! Building Envelope





Better Buildings Alliance Snapshot

PARTNERSHIP	
Number of Partners Organizations	213 (174 partners, 39 affiliates)
Square Feet Represented	11 Billion
Percent of U.S. Commercial Buildings	12%
New Partners in 2016	17 (12 partners, 5 affiliates)

RESOURCES	
Energy Saving Resources Available to Partners	100+

Better Buildings Solution Center



Proven Solutions for:

- Large and small buildings
- All sectors
- Specific building types

Search by:

- Your energy efficiency barrier
- Your sector
- Your city or state

betterbuildingssolutioncenter.energy.gov





Welcome to New Partners!





















aashe











Ingenuity for life









Affiliates













THE AMERICAN

















































BBA Program Updates

- Highlight your successes with Showcases and Implementation Models
- 2016 BBA partner progress update request: January through March for 2016
- New BBA energy data reporting option: ENERGY STAR® Portfolio Manager®
- BBA highlights included in Spring Better Buildings Progress Report







SUM WASHINGTON, D.C. MAY 15-17, 2017 U.S. DEPARTMENT OF ENERGY

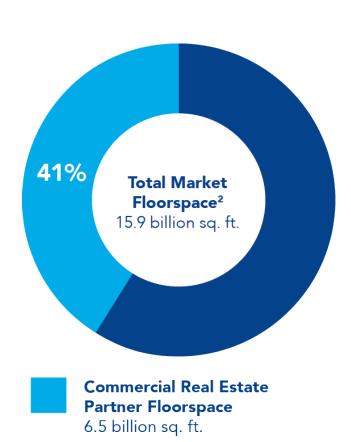




Better Buildings Sector Updates



Commercial Real Estate Sector



PARTNERS

- AtSite
- Bank of America
- CBRE
- Clarion Partners
- Colliers
- Columbia Association
- Cox Enterprises
- Cushman and Wakefield
- Deutsche Asset Management
- Equity One Inc.
- First Potomac Realty Trust
- Forest City Realty Trust
- General Services Administration (GSA)
- Glenborough
- Hines
- Jamestown
- Jones Lang LaSalle
- Kessinger Hunter & Co
- Kilroy Realty
- Kimco Realty Corporation
- Liberty Property Trust
- MC Realty

- Mesa Lane Partners, LLC
- Newmark Grubb Knight Frank
- Parmenter Realty Partners
- PNC Financial Services Group
- Principal Real Estate Investors
- Prologis
- Prudential Financial, Inc.
- Regency Centers
- Retail Properties of America
- Sharpe Properties Group, LLC
- Shorenstein Properties, LLC
- Siemens
- Studley
- The JBG Companies
- The Tower Companies
- The Westfield Group
- Tishman Speyer
- Transwestern
- USAA Real Estate Company
- Vornado
- Washington REIT

BOLDED partners are in the Better Buildings Challenge





2016 CRE Sector Resources and Accomplishments

- Priority 1: Incorporating Energy Efficiency Into Appraisal and Valuation
 - Outcome: Appraisal Working Group, March Webinar, Appraiser Training
- Priority 2: Identifying and Evaluating Skilled Engineers
 - Outcome: Solution at a Glance Sample Interview Questions
- Priority 3: Understanding and Communication the Connection between Sustainability and Financial Value
 - Outcome: Finance Working Group, Financial Data Research Entity





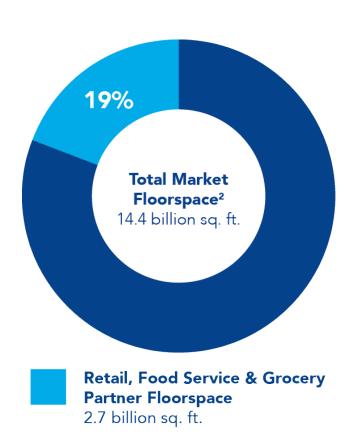
2017 CRE Sector Priorities and Proposed Activities

- Priority 1: Encourage Tenant Level Sub-metering
 - Potential Resource: Map or Database describing the differences in sub-metering regulation by market
- Priority 2: Leased Space Energy Efficiency
 - Participate in the upcoming Leased Space Energy Efficiency initiative (TBA)
- Priority 3: Green Revolving Funds for CRE
 - Potential Resource: Green revolving fund template for building owners
- Priority 4: Impacting Class B & C Real Estate
 - Potential Resource: Market-specific events in conjunction with an Affiliate (e.g. IREM, EDF)





Retail, Food Service, and Grocery Sector



PARTNERS

- Arby's Restaurant Group, Inc.
- Army & Air Force Exchange Service
- Belk, Inc.
- Best Buy
- Boston Market
- CEFCO Stores
- Chipotle Mexican Grill
- CKE Restaurants Holdings, LLC
- Costco Wholesale Corporation
- Dunkin' Brands
- Einstein Noah Restaurant Group, Inc.
- Food Lion
- Ford Motor Company
- Hannaford
- Kohl's Department Stores
- Lamey-Wellehan Shoes
- Lowe's
- Luxottica North America
- Macy's
- McDonald's Corp

- Panda Restaurant Group, Inc.
- PetSmart
- Publix
- Red Robin Gourmet Burgers
- REI
- Safeway
- Shari's Café & Pies
- Staples
- Starbucks Coffee Company
- SUPERVALU
- Target
- The Home Depot
- The Wendy's Company
- Walgreens Co.
- Walmart
- Wawa
- Whole Foods Market
- Yum! Brands

BOLDED partners are in the Better Buildings Challenge

Sector Lead: Holly Carr, DOE - holly.carr@ee.doe.gov

Sector Lead: Sultan Latif, DOE - sultan.Latif@ee.doe.gov





2016 RFSG Sector Resources & Accomplishments

- Priority 1: Proactively replacing or retrofitting roof-top units (RTUs)
 - Retail Rooftop Unit Lease Language Guide
 - RTU resources were promoted and featured at the Better Buildings
 Summit and during check-in calls with partners
- Priority 2: Developing strategies for dealing with large quantities of data from energy management information systems (EMIS)
 - EMIS Peer Exchange conducted July 2016
- Priority 3: Technology Performance Exchange (TPEx)
 - Better Buildings webinar on "Leveraging the Technology Performance Exchange (TPEX) for Large Portfolios," on October 3rd, 4-5pm ET Register





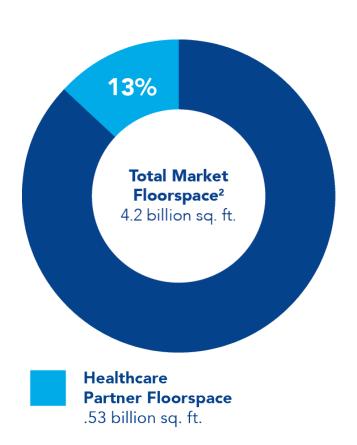
2017 RFSG Sector Priorities and Proposed Activities

- Priority 1: Communicating new product & service needs to vendors and suppliers
 - Provide forum for manufacturers and/or DOE emerging technologies staff to hear directly from partners
- Priority 2: Retail display lighting
 - Host an open peer exchange call or webinar with the Lighting Tech Team
 - Develop guidance on retrofits to common retail display lamps
- Priority 3: Supply chain energy-efficiency
 - Peer exchange with Better Plants leads and partners in Supply Chain initiative
- Additional Interest: Water Efficiency
 - Develop RFSG Water Efficiency Toolkit for Solution Center





Healthcare Sector



PARTNERS

- Abbott Northwestern Hospital
- Ascension
- Beaumont Health System
- Catholic Health Initiative
- CentraCare Health
- Cleveland Clinic Foundation
- Defense Health Agency
- Gundersen Health System
- Hackensack University Medical Center
- HealthSouth
- Kaiser Permanente
- Legacy Health

- Mayo Clinic
- NewYork-Presbyterian Hospital
- Summa Health System
- University of Maryland Medical Center
- University of Nebraska Medical Center
- University of South Alabama Medical Center
- University of Utah Health Care
- UPMC: University of Pittsburgh Medical Center
- Welltower

BOLDED partners are in the Better Buildings Challenge

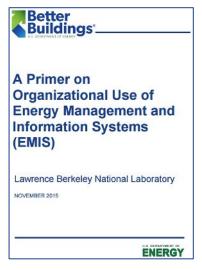






2016 Healthcare Sector Resources and Accomplishments

- Evaluating offerings and managing building controls/EMIS
 - Resources: <u>Primer on Organizational Use of EMIS</u>,
 <u>Using EMIS to Detect Problems and Fix Them</u>
 - Take Action: <u>Smart Energy Analytics Campaign</u> launches in 2017!



- Optimizing air exchange rates in healthcare facilities
 - Resources: <u>Ventilation Setbacks for</u>
 <u>Healthcare Facilities</u>, <u>Optimizing Air</u>

 <u>Exchange Rates in Hospitals</u>,
 Cleveland Clinic's Operating Room
 <u>Implementation Model</u> and <u>video</u>







2016 Healthcare Sector Resources and Accomplishments

- Managing energy consumption of central plants and related equipment
 - Resources: <u>Systems Approach to Central Plant HVAC</u>
 <u>Optimization</u>, <u>Central Plants: Keeping the Heart and Lungs</u>
 <u>Healthy</u>, <u>Energy Efficiency for Large Chiller Systems</u>
 - Take Action: Review and provide feedback on the new
 Central Plant Resource Hub







2017 Healthcare Sector Priorities and Proposed Activities

- Priority 1: Integrating Renewable Energy
 - Promote Renewable Integration Tech Team resources and share partner solutions through case studies and a peer exchange
- Priority 2: Leveraging Utility Offerings
 - Host a working group to identify barriers and solutions for partners and utilities to support the implementation of energy/water efficiency projects at facilities.
 - Promote the utility offerings available to healthcare facilities
- Priority 3: Addressing the Energy/Water Nexus
 - Evaluate and prioritize energy and water efficient technologies
 - Develop case studies and/or technology specifications to be determined by partners



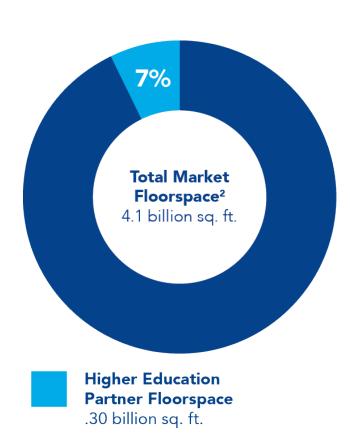
Photo credit: Gundersen Health System.







Higher Education Sector



PARTNERS

- Clark Atlanta University
- Community College of Allegheny County
- Cornell University
- Duke University
- Emory University
- Grand Valley State University
- Loyola University
- Massachusetts Institute of Technology
- Michigan State University
- Northwestern University
- Portland State University
- Ramapo College
- Stanford University

- Tulane University
- University of California, Berkeley
- University of California, Davis
- University of California, Irvine
- University of California, Merced
- University of Colorado Boulder
- University of Hawaii at Manoa
- University of Maryland
- University of Massachusetts Medical School
- University of Miami
- University of South Carolina
- University of Utah
- University of Wisconsin

BOLDED partners are in the Better Buildings Challenge





2016 Higher Education Sector Resources and Accomplishments

- Continuous Commissioning and Controls Optimization
 - April webinar: <u>Fault Detection & Diagnostics in Higher Education</u>
 - Summit session: <u>From Numbers to Action: Using EMIS to Detect Problems and Solve Them</u>
 - Launch of <u>Smart Energy Analytics (SEA) Campaign</u>
 - 9/27 Space Conditioning Team Call on Fan Retrocommissioning Guide and Central Plant Resource Hub
- Improving Facilities Benchmarking
 - Ongoing work with campus data consortium: UNH, USGBC, AASHE, APPA, SEI, Second Nature, Sightlines, AACC and NACUBO.
 - Currently mapping out data fields for each organization's tools. Next meeting scheduled for Oct. 25th @ MIT
- Addressing Campus Growth
 - Summit session: Make Space! Curbing Campus Growth and Using Space Wisely
 - Member Peer Exchange in December





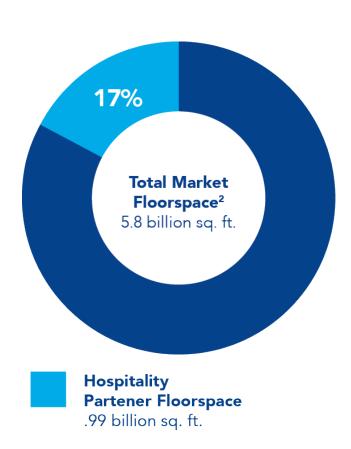
2017 Higher Education Sector Priorities and Proposed Activities

- Priority 1: Improving Facilities Benchmarking
 - Continue our work with the Higher Education Data Consortium group being convened by UNH & USGBC
 - Hold webinar with benchmarking working group to walk through Building Performance Database
 - Facilitate group to approach EPA/ASHE for guidance on surveying institutional energy consumption patterns
- Priority 2: Engaging Occupants through Energy Management Information Systems
 - Hosting EMIS workshop at LBNL in October to discuss M&V and strategies for submetering and occupant engagement
 - Promote case studies and best practices, including UC Berkeley's IM on leveraging building energy dashboards
 - 5 universities have already joined Smart Energy Analytics campaign to develop case studies
- Priority 3: Energy Efficiency in Climate Action Plan Acceleration
 - Presenting at Second Nature Climate Leadership Summit in February
 - Evaluate enhanced role for building energy efficiency in AASHE STARS
 - Complete and promote Implementation Models on successful campus climate action planning





Hospitality Sector



PARTNERS

- HEI Hotels & Resorts
- Hilton Worldwide
- Hyatt Hotels Corporation
- IHG (InterContinental Hotels Group)
- Kelco Management & Development
- Las Vegas Sands Corporation

- Loews Hotels
- Marriott International
- MGM Resorts International
- Saunders Hotel Group
- The Kessler Collection
- The Walt Disney Co.
- Wyndham Worldwide

BOLDED partners are in the Better Buildings Challenge

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2016 Hospitality Resources and Accomplishments

- Evaluating offerings for building controls/analytics/EMIS and managing EMIS
 - Resources: <u>Primer on Organizational Use of EMIS</u>, <u>Cutting Edge Building Technologies</u>, <u>From Numbers</u> <u>to Action: Using EMIS to Detect Problems and Fix</u> <u>Them</u>
 - Take Action: <u>Smart Energy Analytics Campaign</u> (launching 2017!)
- Hospitality Industry Benchmarking
 - Take Action: AH&LA Hotel Energy Survey <u>submit</u> now
- Evaluating and financing solar at hospitality properties
 - Resources: <u>On-Site Commercial Solar PV Decision</u>
 <u>Guide for the Hospitality Sector</u>, <u>Solar PV Case</u>
 Studies









2017 Hospitality Priorities and Proposed Activities

- Evaluate energy and water efficient technologies and promote technological, operational, and/or departmental solutions for hospitality
 - Various technologies will be considered
 - Collaboration with partners and Tech teams to prioritize technologies and develop resources



Partner suggested technologies include:

PTAC next generation units, central plant monitoring systems, battery storage, phase change materials (PCMs), energy efficient refrigerants, air to air (or very little water) cooling towers, elevator and escalator controls, magnetic chillers.

- Enable franchisees to implement energy/water efficient operations
 - Work with AAHOA, AH&LA, and our brand partners to develop resources for franchise level improvements





Better Buildings Tech Team Updates



Join a Technology Solutions Team!



Building Envelopes (NEW!)



Plug and Process Loads



Refrigeration



Renewables Integration



Energy Management Information Systems



Space Conditioning



Lighting and Electrical





Building Envelope Team

- Fall 2016: Kick-off Envelope Tech Team
 - Windows, Roofs, and Walls
 - Save the date: Kick-off Open House Webinar: Nov 9, 3-4ET
- 2017 Plans
 - Coordinate Building Demonstrations: R-5 windows, sprayable sealant technologies, and envelope air sealing strategies
 - Installation guidance and heat and moisture analysis
 - Webinars on available energy efficient technologies



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Plug and Process Load (PPL) Team

2017 Plans

- Host demonstration videos of PPL control products
- 2017 PPL Utility Incentives List

2016 Highlights

- Decision Guides for Plug and Process Load Controls
- Myth Busting: Market Barriers to Advanced Power Strips
- 2016 PPL Utility Incentives List
- Energy Savings and Usability of Zero Client
 Computing in Office Settings Study (Fall 2016)



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Refrigeration Team

2017 Plans

- Design/launch Refrigeration Toolkit
- Develop Case Studies: Refrigeration controls, retrofit of open display cases, and alternative refrigerants



- Peer Call: Whole Foods presented on transcritical
 CO₂ experience
- Pursued case studies on retrofit of open display cases and refrigeration controls



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Renewables Integration Team

2017 Plans

- Energy storage decision making guide
- October team meeting with Whole Foods on solar PV and roofing

2016 Highlights

- Solar PV RFP & Procurement Guidance
 Template
- Fact Sheet: 7 Steps To Selecting A Solar Provider
- 10 Case Studies



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Energy Management Information Systems (EMIS) Team

2017 Plans

- Smart Energy Analytics (SEA) Campaign
 - Technical assistance & national recognition
 - Information on how to implement cost-effective energy savings
- Develop resource on top MBCx measures, with associated data analytics guidance
- Coordinate Real Building Demonstrations

2016 Highlights

- Gathered input for SEA Campaign and began recruitment
- Real Building Demonstration of market ready EMIS technology



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Space Conditioning Team

2017 Plans

- Expansion of Central Plant Resource Hub
- ASHRAE Guideline 36 application resources

2016 Highlights

- Tune-up your fan systems (Fall 2016)
- Central Plant Resource Hub (Fall 2016)
- OpenStudio model for HVAC efficiency measures for RTUs and other packaged HVAC systems



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National Renewable Energy
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Space Conditioning Team: Advanced Rooftop Unit (RTU) Campaign

RTU Campaign

- Technical assistance & national recognition
 - 2015 Award Recognitions at the 2016 PRSM National Conference
- Business Case Considerations for Proactive Rooftop Unit Replacement
- Retail Rooftop Unit Lease Language



2017 Plans

- 2016 Award Recognitions at the 2017 PRSM National Conference
- Results of Automated Fault Detection and Diagnostics (AFDD) for RTUs demonstrations
- Continued recruitment and expansion





Lighting and Electrical Team

- Interior Lighting Campaign (ILC)
 - So far \$13.5 million in annual energy savings from over 680,000 troffers.
 - Submit site information for 2017 ILC awards
- Lighting Energy Efficiency in Parking (LEEP)
 Campaign
 - Over 140 total LEEP Participants
 - 2014/2015 LEEP awardees achieved up to 91% energy savings
- 2017 Plans:
 - Developing case studies
 - Aim for the 1 Million goal for ILC
 - Coordinate Real Building Demonstrations of advanced lighting controls



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Better Buildings Market Solutions Updates



Market Solutions Activities FY17

- Green Appraisals
 - Resource: Owners Guidance for Ordering High Performing Appraisals
 - Get Involved: Pilot the Guidance and publish case study w DOE
 - Get Involved: Host or participate in Energy Matters! training course
- Impact of Energy Factors on Commercial Mortgages
 - Resource: Webinar <u>Commercial Mortgages: Energy Factors and Default</u>
 Risk
- Linking High Performing Buildings and Financial Performance
 - Resource: Initiative and Data Request Summary (Follow Up email)
 - Get Involved: Results from Pilot Research in October webinar
 - Get Involved: Join this new DOE Initiative and share data





Market Solutions Activities FY17

- Leased Space Energy Efficiency
 - Results: Energy Efficiency in Separate Tenant Spaces report
 - Get Involved: Provide feedback on proposed recognition for landlords and tenants
 - Get Involved: Join as a participant or supporter



Other Ways to Get Involved

- Develop a case study of your successful energy project
- Present on a Better Buildings webinar or peer networking call
- Serve as reviewer for DOE funding opportunities
- Invite others to join Better Buildings
- And...





Step up to the Challenge!

STEP UP TO THE BETTER BUILDINGS CHALLENGE

- Earn national recognition for energy efficiency leadership
- ▶ Join DOE in media events spotlighting your energy efficiency achievements
- Access technical assistance to analyze your portfolio energy use

PARTICIPATE IN THE BETTER BUILDINGS ALLIANCE

- Participate in peer-to-peer networking opportunities addressing sector specific energy topics
- ► Tap into expert-led technology and market solutions teams
- Access technology demonstration opportunities
- Develop public resources such as technical performance specifications and sample lease clauses





Many ways to stay informed!

Follow us on social media!

Twitter: @BetterBldgsDOE LinkedIn YouTube

Sign up for newsletters!

Beat Blog (weekly posts)

 Interviews/Q+As, follow-up pieces from partner events and press releases; solution deeper dive

<u>Bulletin</u>

 Monthly digest of new solutions, partners, news, events

Get Involved

 Monthly call to action email listing events, webinars, ways to participate with Better Buildings

Top-10 Solutions

Monthly top ten viewed solutions

Participate in monthly webinar series

Check out the <u>newsroom</u> for press on events highlighting partner accomplishments





Join us on Twitter!



Save energy. Save money.



Join us on Twitter, 1-2 p.m. EDT, #EEDay2016





Questions?



Thank You

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