Higher Education Breakout Session

Monday, May 15th, 1:30 PM – 3:00 PM
Room: Columbia 11

Agenda

1:30pm	Welcome & Introductions
1:55pm	Steering Committee Recognition
2:00pm	Chair's Update
2:15pm	Campus Data Consortium Update
2:35pm	Epic Wins
2:55pm	Summit Cheat Sheet for H ED

See hand-out for general programmatic updates

Welcome & Introductions

Jason Hartke
DOE, Commercial Buildings Integration Program Manager

Holly Carr
DOE
Partnerships

Sultan Latif
DOE, Higher Ed Sector Lead

Harry Bergmann
DOE
Data Tools Fellow

John Jameson
ICF, Higher Ed Account Manager

Around the Room

- For everyone:
  Please share your name and school/organization.

- For building owners/ managers:

  What departments do you have strong ties with (e.g., faculty, sustainability, finance, facilities, energy management, energy procurement, etc.) and what has that helped you do?

Congratulations to new Better Buildings Challenge Goal Achievers!

Your time.Your place.
Chesapeake College at 50

23% energy savings

TOWSON UNIVERSITY™

20% energy savings

Thank you to our H ED Steering Committee Members

- **Joan Kowal**, Emory University, Co-Chair
- **John D'Angelo**, Northwestern University, Co-Chair
- **Kathryn Ann Ramirez Aguilar**, CU Boulder
- **Moira Hafer**, Stanford University
- **William Lakos**, Michigan State University
- **Andrea Trimble**, University of Virginia
- **John Bernhards**, APPA
- **Kathia Benitez**, Northwestern University
- **Phil Wirdzek**, I2SL
- **Greg Versonder**, Stevens Institute of Technology
- **Emily Flynn**, Sustainable Endowments Institute

2017-2019 Steering Committee Nominations can be submitted to bba@ee.doe.gov by **May 31st**

Chair Update

Joan Kowal, Emory University
John D’Angelo, Northwestern University

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Sector Priorities: Progress to Date

1. Improving Facilities Benchmarking

- Continued to work with Campus Data Consortium, holding a Campus Data Tools webinar and completing tool dataset mapping

2. Engaging Occupants with Energy Management Information Systems (EMIS)

- EMIS Workshop & Tour @ Lawrence Berkeley National Laboratory
- Published and promoting Implementation Models on Northwestern's sustainNU program, UC Berkeley's Energy Management Initiative

3. Energy Efficiency in Climate Action Plan Acceleration

- Hosting Summit session on "Proven Strategies for Tackling Long Term Campus Energy Goals" with Chesapeake College and Duke University
- Presented @ Second Nature's Climate Leadership Summit

Any feedback on opportunities being missed? Are there specific tech team resources that would be helpful? Other areas to focus?

BBA Calendar – Upcoming Dates

- Confirm steering committee: ***early June***
- Steering committee meeting: ***mid-late June***
- Confirm priorities and sector plan: ***Summer***
- Open House webinar: ***early September***

HVAC Resource Map

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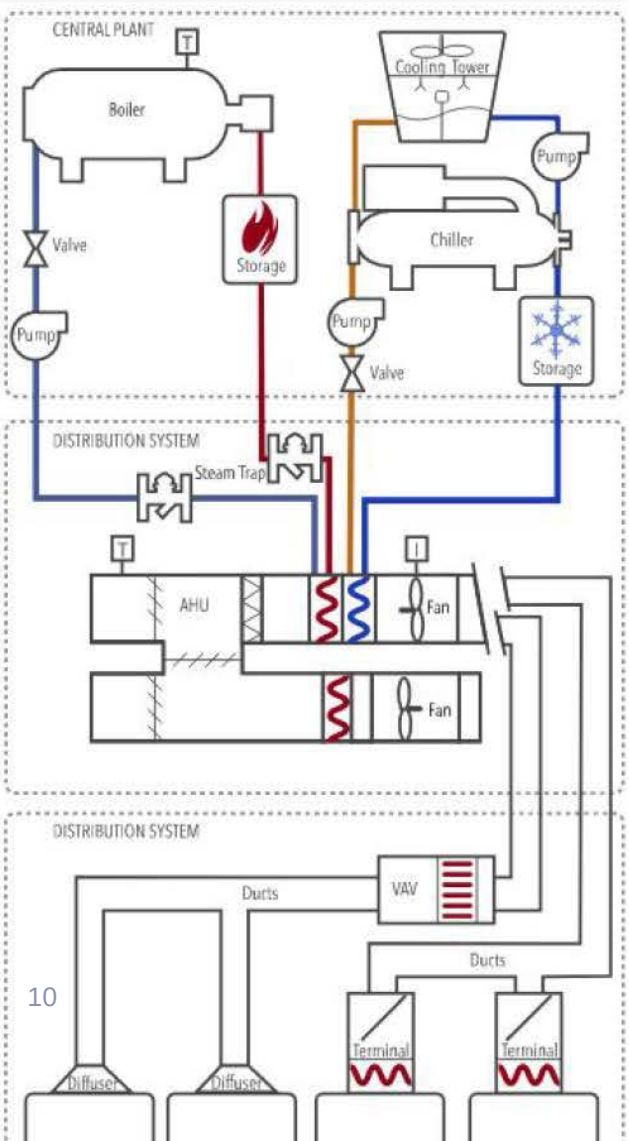
HVAC Resources



What is this resource?

The Central Plant Resource Map is an intuitive graphical interface that provides quick access to a broad array of quality information on operations and maintenance best practices and energy and water efficiency measures. The resources cover the central plant, distribution systems, and zone systems. The primary audiences for this resource are facility managers, operations staff, and design engineers who are looking to improve central plant and distribution efficiency but don't have time to search for these resources.

This Resource Map is not a repetition of guidance provided in codes and standards. It should not be used in lieu of professional engineering services.

Explore HVAC Resources

Use the horizontal navigation above or the interactive diagram to dive into resources on different HVAC components.

The resources listed on this site have been carefully selected to help narrow your search for helpful information.

Financing Navigator

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BETTER BUILDINGS FINANCING NAVIGATOR

There are many ways to finance energy efficiency projects in buildings you own or occupy. The Navigator helps you cut through this complexity to secure financing that works for you.

What would you like to do?

Explore financing options >

Find financing that fits your needs >

Connect with Financial Allies >

On-Site Energy Storage Decision Guide

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By serving as both generation and load, energy storage can provide benefits to both consumers and the grid as a whole. For most commercial customers, the primary energy storage applications are:

- Energy Arbitrage (buy low, sell/use high)
- Demand Charge Management
- Power Factor Charge Management
- Momentary Outages
- Sustained Outages
- Renewable Energy Shifting and Smoothing

Depending on the local utility, some ESSs can also generate revenue by providing services to the larger grid. In these cases, an agreement is made between the system owner and the utility. This is either done directly through the utility, or through a system aggregator who then provides services to the utility. These aggregated groups of systems are sometimes referred to as virtual power plants (VPPs).

Energy Arbitrage

Due to fluctuations in demand, the price of electricity varies throughout the course of a day, and throughout the year. Although some customers may be charged a flat rate for their electricity, utilities try to incentivize energy used during low-cost off-peak hours by offering customers time of use (TOU) or real-time pricing; inquire with your utility or energy supplier. When TOU pricing is the rate plan in place, an ESS can be charged when the price is low, and discharged to offset the facility's load when the price is high. For this application, the ESS will typically have at least 4 hours of storage capacity and cycle between 200 to 400 times per year.

Demand Charge Management

Demand charges vary based on utility and rate structure but are usually based on a customer's peak demand each month. In markets with high

SCHOOL CASE STUDY

The Mountain View High School District in Los Altos (MVLA) partnered with Green Charge to install EV chargers and energy storage at their facility. The system was installed at no cost to the school, and uses shared savings to pay for the equipment. The net benefit is expected to be over $1 million over the life of the project.

Situation:

High school with 4,300 students, faculty, and staff

Solution:

Four Level 2 EV Chargers

1.08 MW Li-ion storage

No upfront cost

Benefits:

$86,000 in demand charge savings annually

Flat-fee EV charging for faculty and staff

Additional income through CAISO wholesale energy market

Image: System installation at the Mountain View Campus

Campus Data Consortium Update

Jennifer Andrews

University of New Hampshire
Sustainability Institute

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Campus Data Consortium

Data Tools – Why did DOE make them?

Tons of Data

- More buildings are creating data than ever before.

Lack of Insight

- Even when data is being collected, it is often decentralized and in varying formats, making analysis and exchange significant barriers to market activity and growth.

No Insight = No Action

- When decision makers understand how their buildings use energy and can predict results from upgrades, they will make smarter investments, design better policies, and implement better programs.

Campus Data Consortium

Solution: Integrated network of standardized building data tools.

Asset Score
BuildingSync XML

Campus Data Consortium

Why is this the solution?

- DOE's unique position to provide free, standardized, and integrated approach to public agencies with limited resources.
- Each tool addresses one or more phases of a building's lifecycle.
- Tools can serve as a foundation for growth of private sector products.
- Tools aim to support economic growth, investment in cities, resiliency, and competitiveness.

BEDES
BUILDING ENERGY DATA EXCHANGE SPECIFICATION

Asset Score
BuildingSync XML

SEED
STANDARD ENERGY EFFICIENCY DATA PLATFORM
U.S. DEPARTMENT OF ENERGY

CLOUDS TX

BPD
BUILDING PERFORMANCE DATABASE

EnergyPlus

Epic Wins

- In the past year, what's been a **major energy or water efficiency win** for you?

- What **big challenge** did you overcome along the way?

Occupant Engagement via sustainNU

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Home » Solutions » Implementation Models » Comprehensive Occupant Engagement Program

Share

ORGANIZATION TYPE
Private university

GOAL
To encourage more sustainable behavior, build leadership capacity, and remove barriers that discourage sustainable practices among occupants of the university's 200+ buildings

BARRIER
Navigating the complexities involved in reaching the whole Northwestern community spread across 12.4M sq. ft. in the City of Evanston and Chicago

SOLUTION
The University formed a sustainability steering committee and five Sustainability Working Groups to create and implement a Strategic Sustainability Plan with an Implementation Roadmap

OUTCOME
Communication and outreach efforts have expanded the sustainability program's reach, successfully engaging students, faculty, staff, and members of the broader community in Northwestern's sustainability efforts

Implementation Model: Comprehensive Occupant Engagement Program

Northwestern University

OVERVIEW
Northwestern University developed and launched a communication and engagement program, sustainNU, aimed at encouraging more sustainable behavior among the occupants of the University's more than 200 buildings. This initiative leverages certification programs, social media, outreach events, and friendly competition to foster a community-wide culture of sustainability and environmental stewardship, removing barriers that discourage sustainable practices. This program also builds leadership capacity among students, faculty, and staff, and empowers them to identify and act on opportunities to conserve resources, reduce waste, increase energy efficiency, or otherwise reduce environmental footprint.

More

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H ED: Summit Cheat Sheet

- **Proven Strategies for Tackling Long-Term Campus Energy Goals**
  - Chesapeake College and Duke University
  - Monday, May 15th – 3:30 PM to 5:00 PM

- **Energy Efficient Smart Labs: Learning from the Leaders**
  - CU Boulder, I2SL, NREL, and Los Alamos National Laboratory
  - Tuesday, May 16th – 9:30 AM to 10:45 AM

- **High Performing Buildings for High Performing People**
  - Harvard University, Sustainability Anthem, and U.S. DOE
  - Tuesday May 16th – 11:15 AM to 12:30 PM

- **Plug Into Savings: Best Meter & Control Strategies for Office Plug Loads**
  - University of Washington, Seventhwave, and NREL
  - Tuesday, May 16th – 11:15 AM to 12:30 PM

Summit Sessions of Interest (continued)

- **Bringing Efficiency to Research (BETR) Grants**
  - CU Boulder, I2SL, and FEMP
  - Tuesday, May 16th – 2:00 PM to 3:45 PM

- **Saving the Sun for Later: Opps. & Barriers for PV + Energy Storage**
  - Stem, San Francisco, State of CA, and Boston Properties
  - Wednesday, May 17th – 9:30 AM to 10:45 AM

- **Next Frontier of Plug Loads: Wireless Meter & Control Tech.**
  - Stanford University, NREL, and Waypoint Building Group
  - Wednesday, May 17th – 9:30 AM to 10:45 AM

- **Getting to "Yes" with ESAs and Efficiency-as-a-Service**
  - Metrus Energy, SparkFund, Citi, and JDM Associates
  - Wednesday, May 17th – 2:00 PM to 3:15 PM

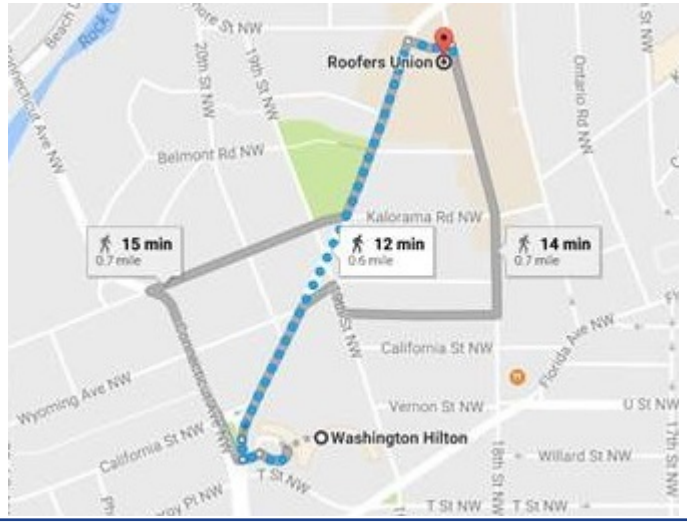
TONIGHT! H ED Sector Networking Event

Roofers Union

5:30 PM

2446 18th St. NW

Washington, DC 20009



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Thank You

Jason Hartke DOE Commercial Buildings Integration Program Manager Jason.Hartke@EE.DOE.Gov	**Sultan Latif** Higher Education Sector Lead 202-287-1829 Sultan.Latif@ee.doe.gov
Harry Bergmann Data Tools Fellow 202-287-1339 Harry.Bergmann@ee.doe.gov	**John Jameson** Higher Education Account Manager 303-792-7828 John.Jameson@icf.com