Seize the Day-
Using Building Milestones as Energy Efficiency Opportunities

October 6, 2015
3:00-4:00 PM ET
Overview and Agenda

- Welcome and Overview
- University of Virginia
- City of Hillsboro, OR
- Arby’s Restaurant Group
- Additional Resources
- Question & Answer Session
## Today’s Presenters

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Turning Building Lifecycle Milestones Into Energy Efficiency Opportunities

Jesse Warren, Sustainability Program Manager – Buildings & Operations
Better Buildings Webinar Series
October 6, 2015
Office For Sustainability
The Problem

INVEST

LONG TERM SAVINGS

University of Virginia

Facilities Management

Sustainability UVA
The Solution

INVEST

125% COST RECOVERY

REMAINING SAVINGS

UNIVERSITY OF VIRGINIA

SUSTAINABILITY UVA
Bryan Hall
Bryan Hall
Relamping
Bryan Hall
Repair Insulation and Add Insulating Jackets
Bryan Hall
Upgrade to Digital Controls
Bryan Hall Funding

$145K

$215K
DDC UPGRADE

FIRST $180K

REMAINING SAVINGS
Chilled Water Use

Chilled Water Use at Bryan Hall

BASE YEAR

RELAMPING & SCHEDULING

DDC UPGRADE & RCX

SUSTAINABILITY UVA
Chilled Water Use
Over 75% Reduction Last Year
Electricity Use
14% Reduction Last Year

Electricity Use at Bryan Hall

BASE YEAR
RELAMPING & SCHEDULING
DDC UPGRADE & RCX

SUSTAINABILITY UVA
Heating Hot Water Use
150% Increase Last Year

Heating Hot Water Use at Bryan Hall

BASE YEAR
RELAMPING & SCHEDULING
DDC UPGRADE & RCX

MMBtu’s

Month

July '11 to March '15

SUSTAINABILITY UVA
Energy Cost
$38k (34%) Reduction Last Year
Clark Hall
Clark Hall Funding

- $300K
- DDC UPGRADE
- $150K

FIRST $375K

REMAINING SAVINGS
Building Sustainability

Green Labs

DELTA FORCE
B.O.T.

UNIVERSITY OF VIRGINIA GREEN WORKPLACE PROGRAM
Delta Force Update
BUILDING SUSTAINABILITY

Project Update

- 500 CFL lightbulbs replaced with T8 bulbs.
- Fitted insulation jackets on steam valves.
- Installed efficient control valves on water systems.

*building tracker link

To learn more, visit: www.virginia.edu/sustainability
Questions

Contact:
University of Virginia – Facilities Management
Office for Sustainability
http://www.virginia.edu/sustainability/

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Peter Brandom

City of Hillsboro, OR
Energy Efficiency with Building Milestones

Better Buildings Program Webinar October 6, 2015
Hillsboro, Oregon
City Portfolio

- 13 departments
- 800 employees
- 60 facilities
- 400 vehicles
- 4,000 streetlights
- 30 City-maintained traffic intersections
- Water treatment and distribution system

- 565,722 total sq ft
- 475,000 sq ft in BBC
- 200+ kW on-site renewables
- 35 City-installed electric vehicle charging stations
2030 Sustainability Goals – City Operations

Materials management:
• Achieve a rate of construction material consumption that meets internal standards for sustainability
• 100% of all inputs purchased by the City are sourced from sustainable sources or meet internally established criteria (e.g., zero waste, zero toxins) where technologically and financially feasible
• Zero toxic emissions
• 100% recycling of waste from City operations
• Zero construction and maintenance waste (no waste from construction and maintenance activities is sent to landfill). May be accomplished via public/private partnerships

Energy and air quality:
• 60% reduced City facility energy consumption per square foot (2007 baseline)
• 100% of electricity and natural gas sourced from renewable sources for City facilities and exterior lighting infrastructure
• 80% reduction in greenhouse gas emissions; 100% of remaining emissions offset (2007 baseline)
• 80% production of energy for City facilities from renewable energy sources
• 100% fossil fuel-free staff vehicles and 40% reduction for other exempt vehicles (non-passenger emergency response, etc.) [Based on available technologies and cost effectiveness] (2007 baseline)
• All City facilities zero net energy consumption, if feasible based on Return on Investment (ROI) or cost/benefit analysis

Policy:
• 100% of City development investments meet a standard set for sustainable development, and City promotes and encourages sustainable development by others
• 100% of applicable City policies incorporate the principles of sustainability

Natural Resources:
• 25% reduction in water consumption by City facilities against established baseline (including re-use and other measures) (2007 baseline)
Building Milestones

• New construction & renovation
• Operations & Maintenance
• Related Policy Opportunities
Milestone – New Construction & Renovation

• Policy
  – LEED useful for design, but...
  – Energy modeling
  – 3rd party commissioning
Milestone – New Construction & Renovation

• Design
  – Must marry designers with operators
Milestone – New Construction & Renovation

• Renovations (ren-uh-veyt)
  – “to restore to good condition; make new or as if new again; repair”
  – “to reinvigorate; refresh, revive”

• Shute Park Library BBC Showcase Project

Before
Milestone – New Construction & Renovation

- Shute Park Library BBC Showcase Project

After
Milestone – Operations & Maintenance

• Policy
  – 3rd party commissioning
  – How buildings are maintained – focus on energy management, occupant behavior

• Operations
  – EMP prescribes process, calendar
  – Controls
  – Data, facility energy use tracking, reporting
Milestone – Operations & Maintenance

- Seasonal maintenance opportunities
- Shute Park Aquatic Center

**Recreation Center**

953 SE Maple Street, Hillsboro, OR 97123  |  Map it
Portfolio Manager Property ID: 1630704  |  Primarily: Other - Recreation
Year Built: 1981

**Metrics Summary**

- **ENERGY STAR score (1-100)**: Not Available  |  Not Available  |  N/A
- **Source EUI (kBtu/ft²)**: 746.3  |  835.7  |  -114.8 (-15.3%)
- **Site EUI (kBtu/ft²)**: 482.6  |  397.9  |  -84.7 (-17.6%)
- **Energy Cost ($)**: 280,123.74  |  212,083.51  |  -67,140.23 (-24.0%)
- **Total GHG Emissions (Metric Tons CO2e)**: 1,413.6  |  1,166.1  |  -247.5 (-17.5%)
Milestone – Related Policy Opportunities

• Dark sky and energy efficient lighting
CITY OF HILLSBORO

Implementation Model:
Sustainability Revolving Fund

COMMUNITY SIZE
Small suburban, population 93,000

GOAL
To achieve a 60% reduction in City facility EUI by 2030, based on a 2007 baseline

BARRIERS
Inconsistent access to capital for energy efficiency projects

SOLUTION
Creation of Sustainability Revolving Fund (SRF), a dedicated internal fund established to finance projects that address one or more goals in the City's Sustainability Plan

OUTCOME
The fund has provided more than $45,000 to support five projects that will produce an estimated $24,000 in annual cost savings, it has also served to advertise the benefits of the sustainability program to City employees, increase awareness of the City's potential
Thank You

“The City of Hillsboro envisions a sustainable future, in which the City responsibly satisfies the needs of its citizens, provides a healthy and satisfying work environment for its employees and minimizes its impact on the physical environment of the community”

peter.brandon@hillsboro-oregon.gov

hillsboro-oregon.gov/sustainability
Frank Inoa

Arby’s Restaurant Group
Behavior-Based Efficiency
Estimated $769 annual per store savings

Hot Water Temperature Management
10° adjustment can yield $167 savings per year
ARBY’S EFFICIENCY MATTERS
LOW COST INITIATIVES

Gaskets
Can help save up to $150 on electricity bills per year

Hot Water Temperature Management
10° adjustment can yield $167 savings per year

Low Flow Aerators
Estimated $427 annual per store savings

Pre-Rinse Spray Valves
Inexpensive installation pays for itself in less than 1 year

Programmable Thermostats/Asset Management Systems
Estimated $1,700 savings possible per year

Electronically Commutated Motors
New specification and low cost retrofit for walk-ins

Vinyl Strip Curtains
Save 10% on walk-in energy usage
ARBYS EFFICIENCY MATTERS
LONG-TERM INVESTMENTS

Low Oil, Energy-Efficient Fryers
Save up to 49% on energy

Lighting Upgrades: Neon to LED Banding
Save up to $2,500+ in utilities, $2,000 on maintenance

Lighting Upgrades: Interior Lighting T12 to T8 Conversion
Save approximately 50% on lighting-related energy bills

Roofing (White)
Earn 5% rebate and reduce energy consumption by 40%
ARG ENERGY GOALS & SAVINGS (2011 BASE LINE)

**GOALS**

15% Reduction in Total Energy Consumption in Company-Owned Restaurants by the end of 2015 (Arby’s Efficiency Matters)

20% Reduction in Total Energy Consumption in Company-Owned Restaurants by 2020 (DOE’s Better Buildings Challenge)

**CURRENT SAVINGS (EOY 2014)**

11% Reduction in Total Energy Consumption

10% Reduction in Total Energy Costs
PARTNERSHIPS/AFFILIATIONS
Additional Resources
For More Information

- University of Virginia
  - http://sustainability.virginia.edu
  - http://betterbuildingssolutioncenter.energy.gov/partners/university-virginia
- City of Hillsboro, OR
  - www.hillsboro-oregon.gov/sustainability
  - http://betterbuildingssolutioncenter.energy.gov/partners/hillsboro-or
- Arby’s Restaurant Group
  - www.arbys.com/corporate-responsibility
  - http://betterbuildingssolutioncenter.energy.gov/partners/arby%E2%80%99s-restaurant-group-inc
Q & A
Join us for the next Better Buildings Webinar

Registration is now open!

November 3, 3:00 – 4:00 PM ET
Taming the Energy Hog: What Every Organization Should Know to Address Data Center Energy Use

Think you are not an IT company? Think again. As sales move online, email archives grow, and more information is collected and stored, many organizations are seeing dramatic increases in energy use from data centers. Attend this webinar to learn how Better Buildings Challenge and Accelerator partners are forming partnerships within their organizations and implementing measures to dramatically reduce data center energy usage.

Register here.
Join us for the Better Buildings Alliance
Annual Open House

Registration is now open!

October 19, 2:00 – 3:00 PM ET
Better Buildings Alliance – Annual Open House
Join us for an overview of the new energy efficiency resources and upcoming opportunities available this year through the U.S. Department of Energy’s Better Buildings Alliance. We’ll present the hot topics each sector group (Commercial Real Estate, Healthcare, Higher Education, Hospitality, Retail/Food Service/Grocery) has selected to address this year and highlight the latest from the Technology Solutions and Market Solutions teams. Learn about new solutions that can help reduce energy costs for your organization. Open to existing members and interested organizations.

Register here.
2016
SAVE THE DATE
BETTER BUILDINGS SUMMIT
WASHINGTON, DC · MAY 9–11
**Additional Questions? Please Contact Us**

**betterbuildingswebinars@ee.doe.gov**

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<th>Holly Carr</th>
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<th>Program Support</th>
<th>Kendall Sanderson</th>
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<td>JDM Associates</td>
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