



Higher Education Sector Meet-Up

Susan Corry, University of Maryland

Jesse Warren, University of Virginia

Wendell Brase, University of California, Irvine

Moderators: Kristen Taddonio, DOE; John Jameson, ICF International

May 27, 2014

Agenda

- 10:00 Welcome & Introduction
 - Member Introductions
 - Summit Sessions of Interest
 - Program Updates
- 10:10 Year in Review and Emerging Trends
 - University of Maryland – *Susan Corry*
- 10:15 Maximizing Staff Resources
 - University of Virginia – *Jesse Warren*
 - University of California, Irvine – *Wendell Brase*
- 10:45 Roundtable Discussion and Q&A
- 11:30 Adjourn

Tour Today!

***George Washington
University***

Milken Institute SPH Building

Meet in the Lobby by 3:15

Conference Sessions of Interest

- **Wednesday**
 - Higher Education Data Benchmarking Meet-Up, 12-1:30 pm
 - Maximizing Energy Savings in Laboratories, 1:30-3 pm
 - GWU Building Tour, 3:15 – 5pm
- **Thursday**
 - Managing Data Centers in Multi-Use Environments, 10-11:30 am
 - Seize the Day: Turning Building Life-Cycle Milestones into Energy Efficiency Opportunities, 10 – 11:30am
 - Zero Energy Buildings: Defining It and Doing It, 1:30 pm
 - Using Technology to Engage Tenants and Save Energy, 1:30-3 pm
 - Achieving Continuous Improvement Through Strategic Energy Management, 3:30-5 pm
- **Friday**
 - High Impact Technologies Forum: Harnessing American Ingenuity and Innovation, 8:30am – 3pm

About Better Buildings

- Better Buildings:** A broad, multi-strategy initiative aiming to improve the energy use of our nation's commercial, industrial, residential, and public buildings by 20% over 10 years
 - Better Buildings Challenge:** A leadership initiative calling on CEOs, university presidents, building owners, state and local government leaders, and residential housing developers to publically pledge to reduce entire portfolio's energy use
 - Better Buildings Alliance:** Members address energy efficiency needs in their buildings by setting savings goals, developing innovative resources, and adopting cost-effective technologies and market practices.

Better Buildings Challenge Snapshot, 2014

Membership	
Number of Partners and Allies	250+
Square Feet Represented	3.5 billion
New Members in 2014	60
Solutions	
Partner Solutions Available for Replication	160+
Results	
Energy Saved (Btus)	94 trillion
Dollars Saved	\$840 million
Avoided CO ₂ e emissions (tons)	5.8 million
Funding Committed/Placed	\$5.5 billion / \$3 billion

Better Buildings Alliance Snapshot, 2014

Membership	
Number of Member Organizations	185
Square Feet Represented	10 billion
Percent of U.S. Commercial Buildings	11%
New Members in 2014	14
Activities	
Energy Savings Activities Available to Members	50+
Results	
Increase in Member Activity in 2014	More than 20%
Average Annual Energy Savings Reported	More than 2%

Water Savings Expansion

Last year, DOE launched a Water Savings Pilot with 23 BBC Partners

- Partners reported water savings between 10% and 20%, against their baseline years
- In 2014, total water savings of 440 million gallons are equal to about 570 Olympic-sized pools
- Partners are sharing solutions!
 - Best practice guides for water efficiency
 - Strengthening the business case for water saving projects



Water Savings Expansion

- Based on the success working with this group, DOE is **expanding** its water-saving efforts
- Organizations partnering in the Water Savings Expansion will set water efficiency goals, report progress and share solutions with the market
- Participation is open to all partners with a complete energy data display and one energy-focused showcase project or implementation model
- DOE will work with other federal agencies, including EPA and HUD, as well as leading NGOs, to deliver greater water-related expertise to partners
- Talk to your sector lead or account manager about this opportunity today!

Interior Lighting Campaign (ILC)

High Efficiency Troffer Lighting with Controls

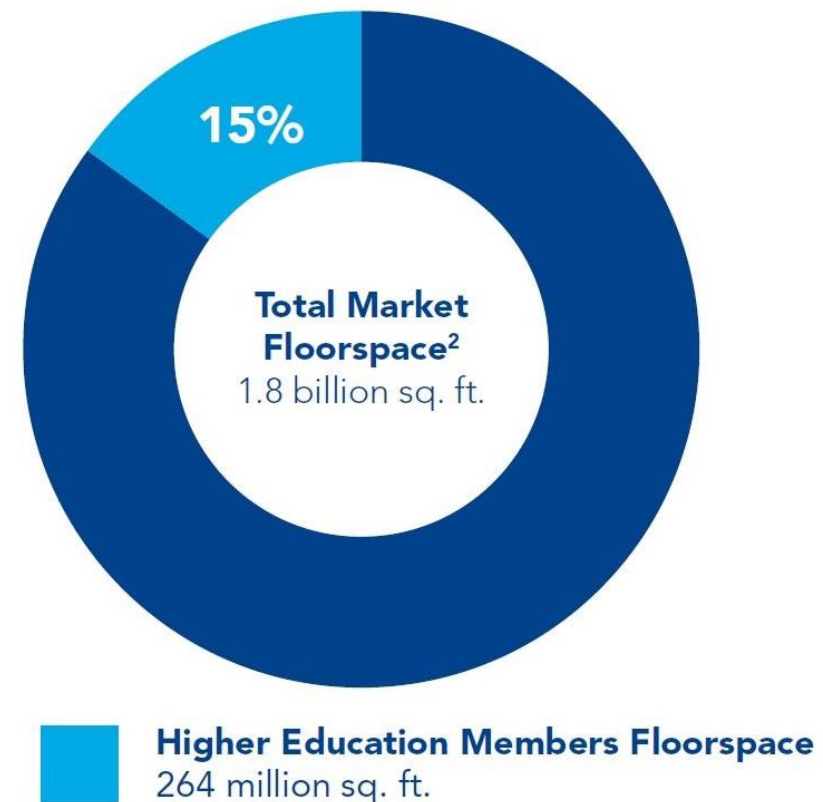
- Official launch - 2015 Better Buildings Summit
- Recognition and awards initiative similar to LEEP Campaign
- Goal to replace 100,000 standard troffers with high efficiency troffers by May 2016
 - Represents about 6.7 million kWh savings
- Resources to include a specification for 2x2, 2x4, and 1x4 troffers, utility incentives database, product lists, technical reports, case studies, free technical assistance.
- Join early!
 - Better Buildings members may join before the launch, and be recognized at the BB Summit as early adopters
 - PNNL can help you identify appropriate sites, and the best product options to meet your unique needs
 - Contact Linda Sandahl at linda.sandahl@pnnl.gov



The Higher Education Sector

- **25 members, 264 million sq. ft.**
- **15% of the sector's 1.8 billion square feet in the U.S.**
- **Top 3 Technology Teams:**
 - Laboratories
 - Renewables Integration
 - Lighting & Electrical
- **Key Links**
 - [Sector Webpage](#)
 - [Sector Opportunities document](#)

Higher Education Members as a Percent of Market Floorspace



New Resources & Activities

- **Technology Solutions Updates**
 - [Interior Lighting Campaign](#)
 - [Advanced Power Strip Specification](#)
- **Market Solutions Updates**
 - [2015 Green Lease Leaders announcement today](#)
- **Latest Implementation Models**
 - Allegheny College: [Campus Energy Efficiency Challenges](#)
 - UC Irvine: [Empowering Managers to Help Teams Meet Big Goals](#)
 - University of Virginia: [Delta Force](#)
- **Annual Progress Update Reports**
 - [Better Buildings Alliance](#)
 - Better Buildings Challenge

Check [the Summit webpage](#) in June for all session presentations!

Susan Corry

University of Maryland



UNIVERSITY OF
MARYLAND

Better Buildings Summit Higher Education Meet-Up

Susan Corry
Energy Manager
University of Maryland
May 27, 2015



BBA Higher Education Steering Committee Members

- Susan Corry, University of Maryland (Chair)
- Bert Etheredge, ASHRAE
- Chuck Frost, UC Berkeley
- Joan Kowal, Emory University
- Kathryn Ramirez-Aguilar, CU Boulder
- Faramarz Vakili, University of Wisconsin
- Susan Vargas, Stanford University
- Jose Varona, University of Miami
- Jeff Wrigley, University of Utah

Sector Topics

- Recruiting & retaining skilled staff
- Financing energy efficiency through green revolving funds
- Building benchmarking/databases by type
- Adoption of IgCC by states
- Retro-commissioning – large & small scale
- Campus growth

Emerging Trends in Energy Efficiency

- Adoption of LED lighting as standard due to utility incentives and wider availability/options
- More focus than ever before on water conservation and water reclamation & re-use
- Distributed generation to increase reliability and redundancy (CHP, solar PV, microgrids)
- Metrics and data driven programs
- Continuous commissioning

Jesse Warren

University of Virginia



University Of Virginia “Delta Force” Implementation Model

Jesse Warren, Sustainability Program Manager – Buildings & Operations

Better Buildings Summit

May 27, 2015



SUSTAINABILITY · UVA

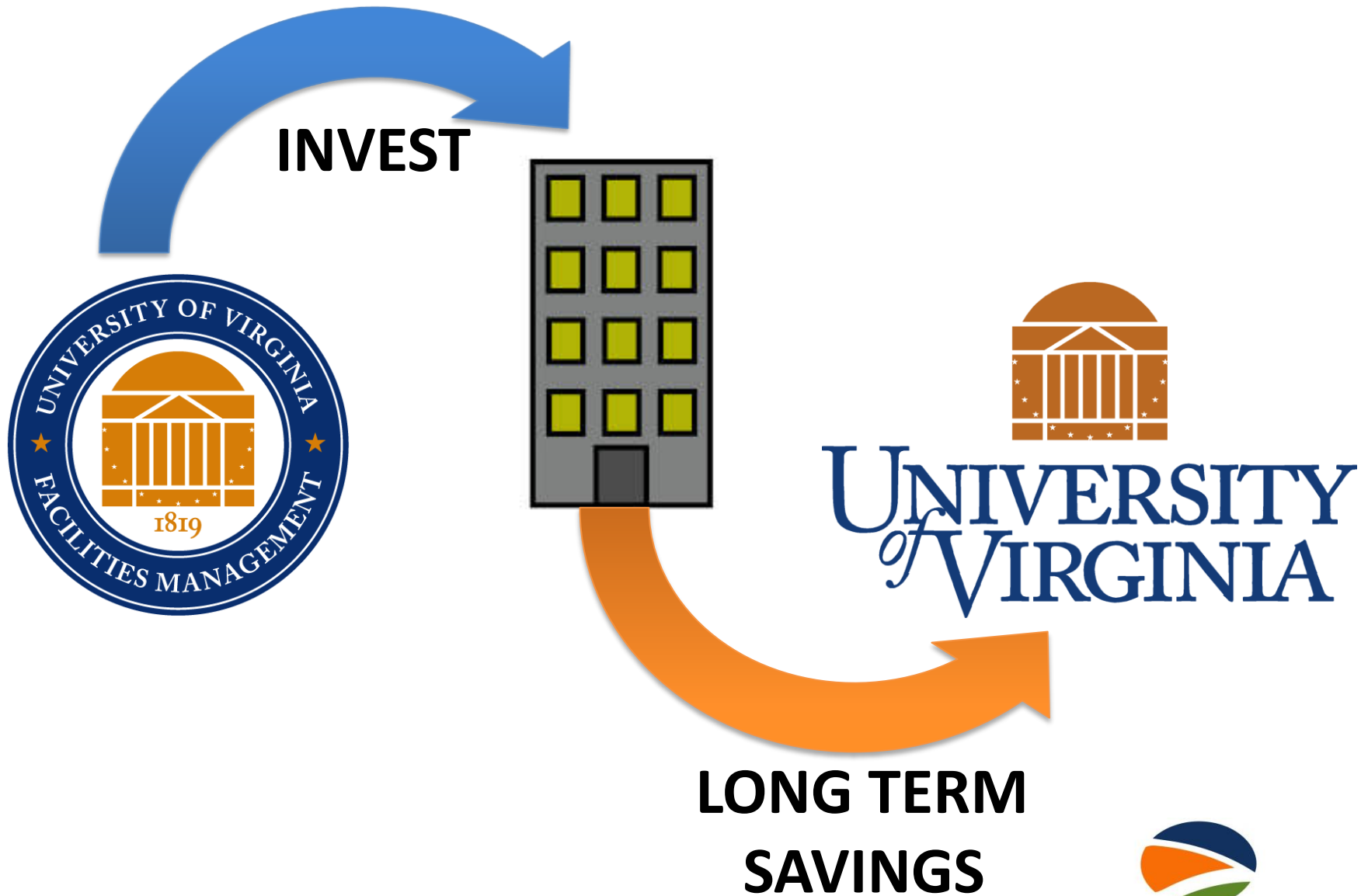
Office For Sustainability



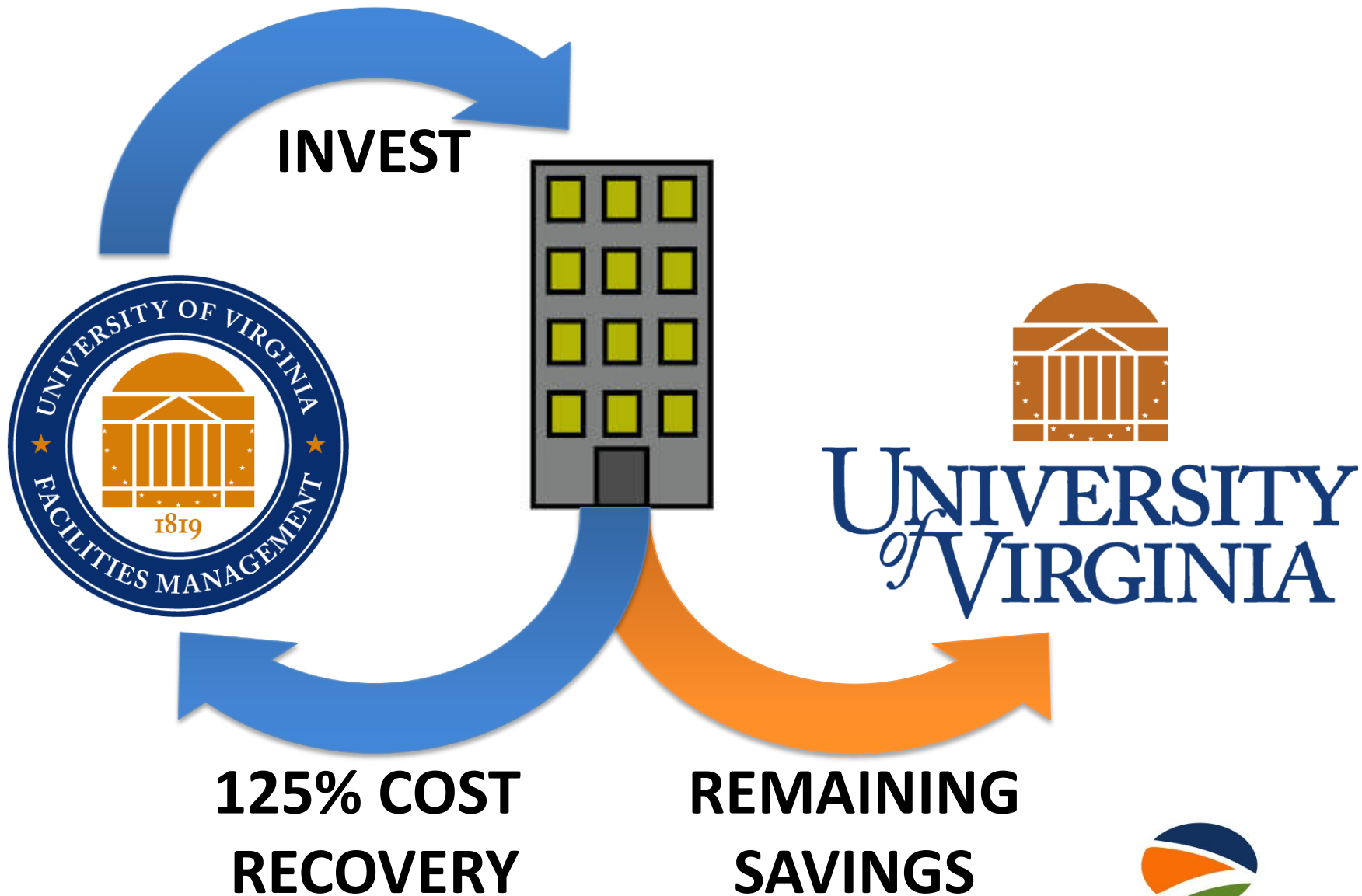
Reducing U. Va.'s Footprint



The Problem



The Solution



Delta Force Retrocommissioning

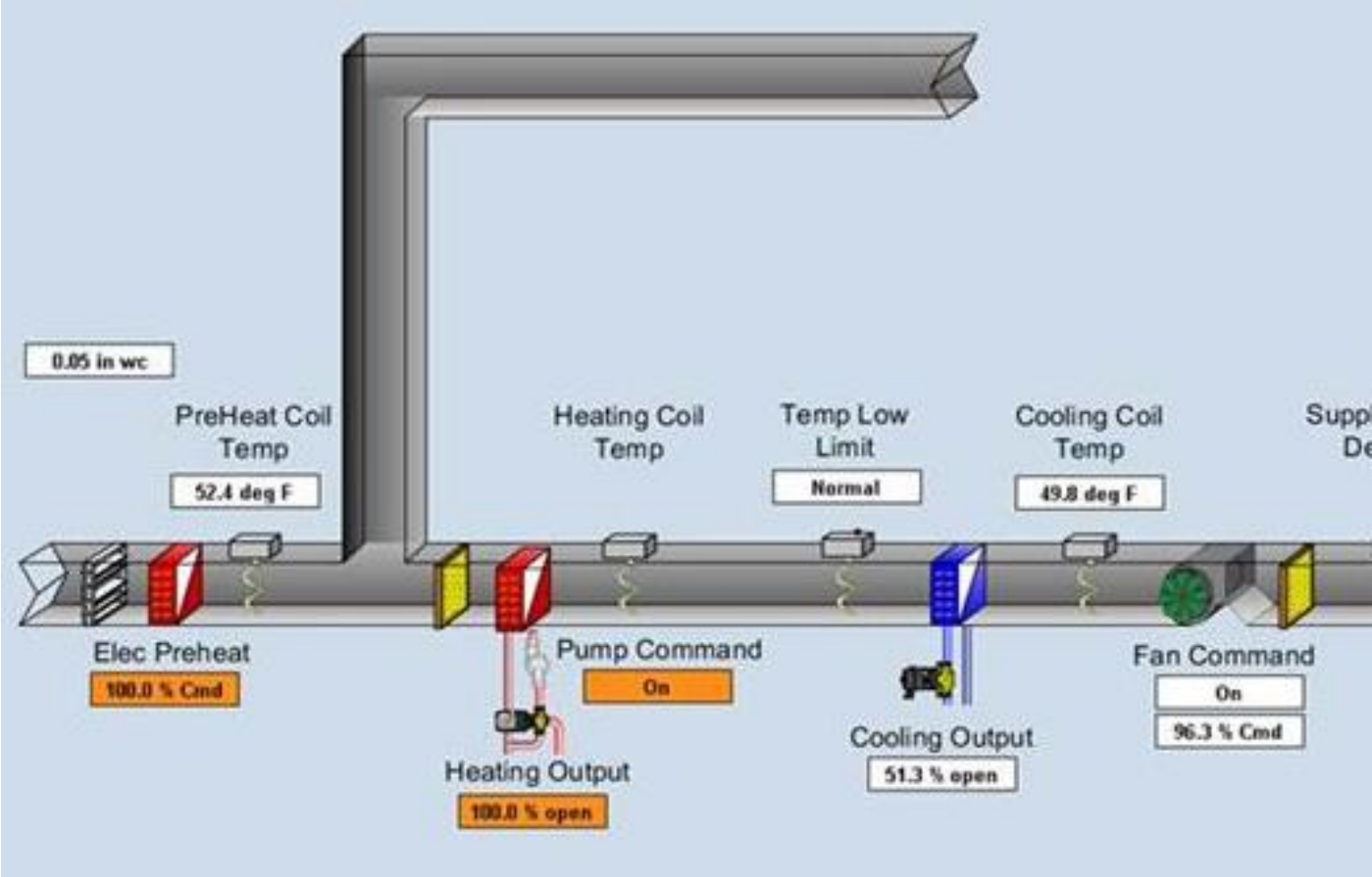
A Team Effort

- Energy Engineers
- Facility Managers
- Facilities Staff and Trades
- External Consultants
- Building Occupants



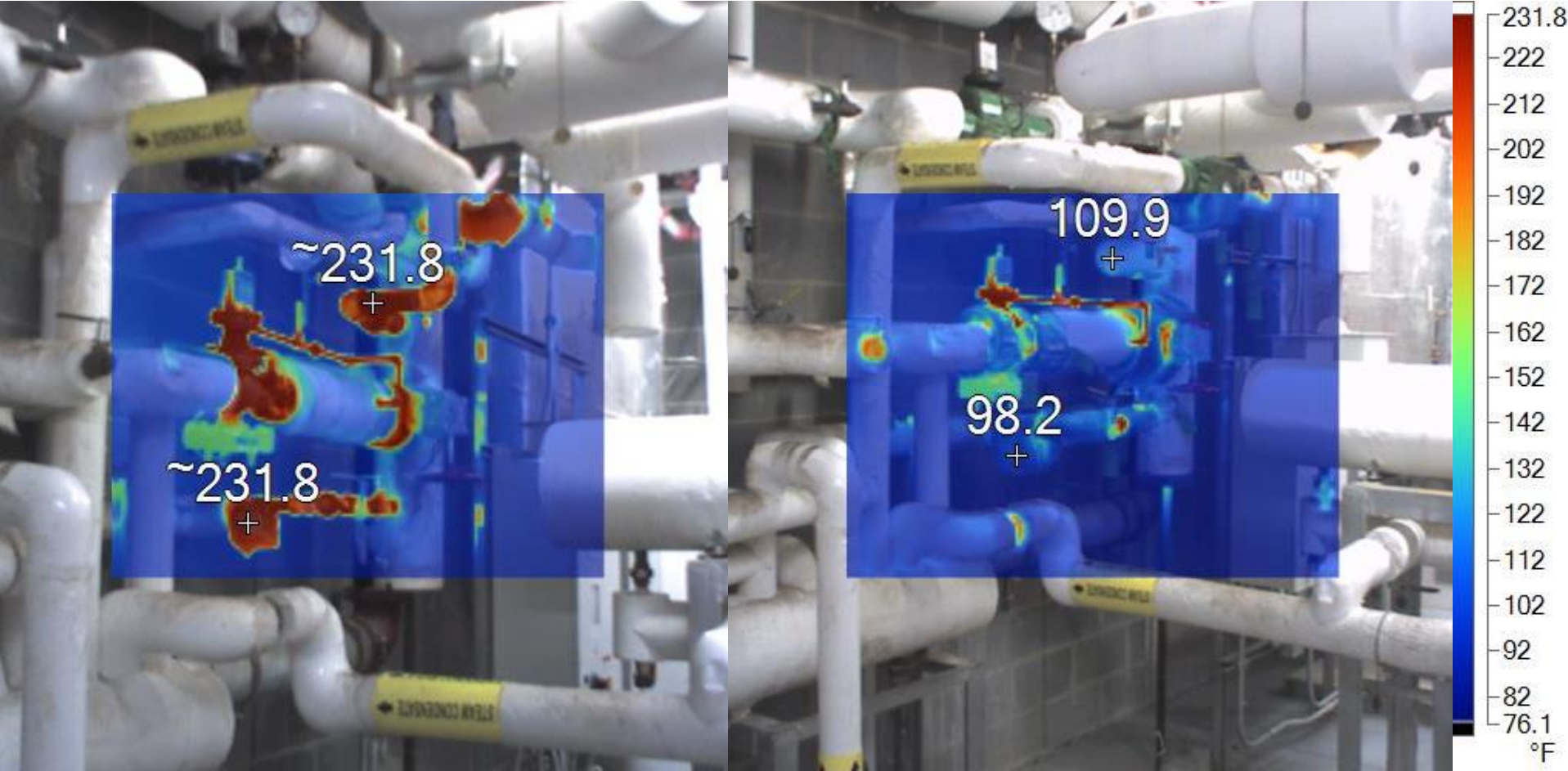
Delta Force Retrocommissioning

Review Controls



Delta Force Retrocommissioning

Assess & Repair HVAC Systems



Delta Force Retrocommissioning

Sample & Test HVAC Equipment & TAB



Delta Force: Beyond Retrocommissioning Relamping

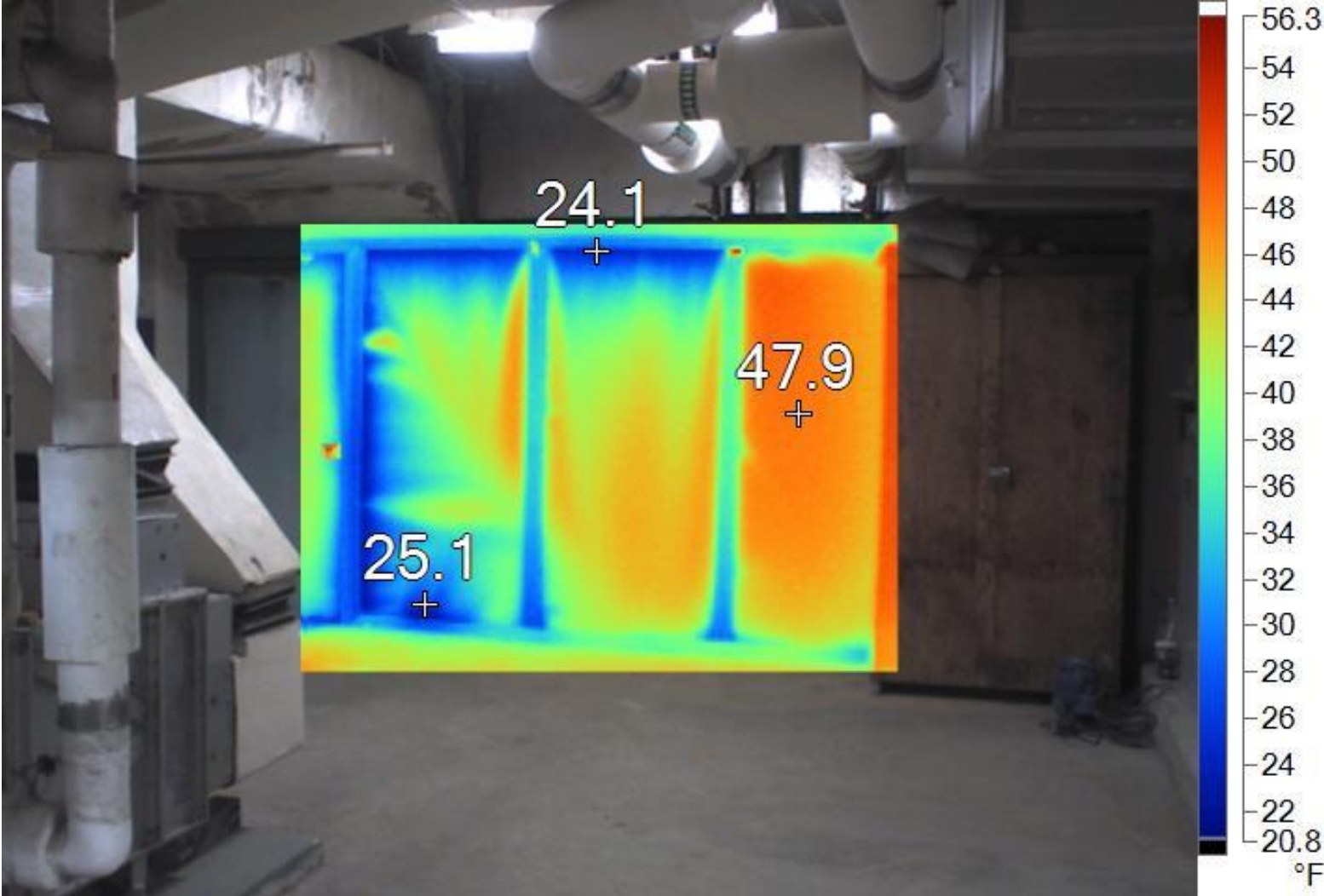


L-PRIZE®
WINNER



Delta Force: Beyond Retrocommissioning

Targeted Envelope Improvements

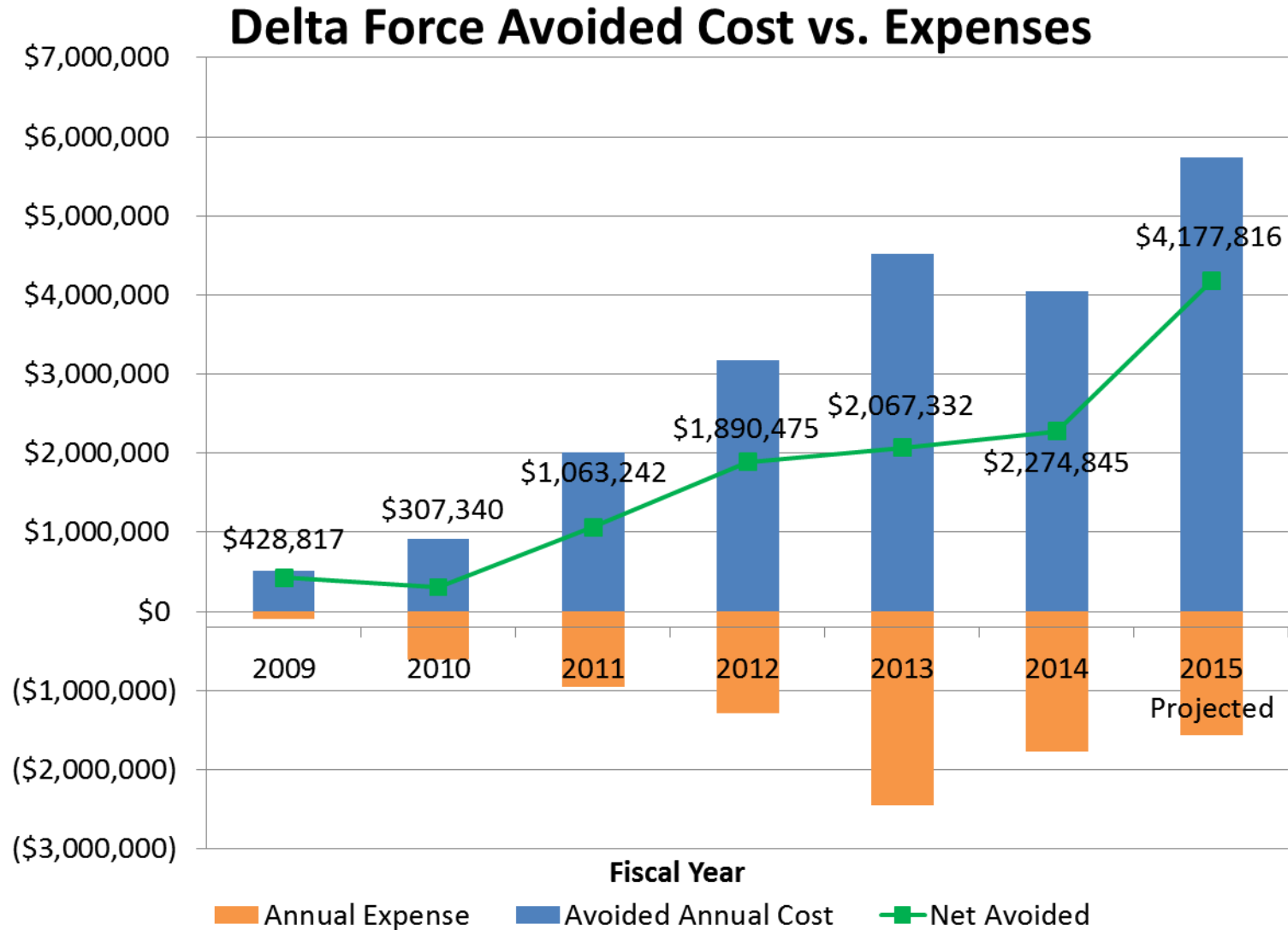


Delta Force: Beyond Retrocommissioning

Targeted Envelope Improvements



Delta Force: Results



Questions?

Contact:

**University of Virginia – Facilities Management
Office for Sustainability**

<http://www.virginia.edu/sustainability/>

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Wendell Brase

University of California, Irvine

Empowering Managers to Meet Big Goals

Wendell C. Brase

Vice Chancellor, Administrative & Business Services, University of California, Irvine
Co-Chair, University of California President's Global Climate Leadership Council



“And when I challenge colleges to reduce their energy use to 20 percent by 2020, UC Irvine went ahead and did it last year. Done. So UC Irvine is ahead of the curve.”

President Barack Obama
UCI Commencement
June 14, 2014

Critical-Path Steps to Exemplary Performance

1. Get the organizational culture ready
2. Adopt a challenging goal
3. Understand true scale of the challenge
4. Develop scalable strategy
5. Adopt interim milestones
6. Governing board/leadership alignment and support
7. “Mainstream” delegated responsibilities
8. Staff with appropriate talent
9. Build a team
10. Foster breakthrough thinking
11. Prepare to weather setbacks
12. Dedicated source of program financing
13. Simple project approval process
14. Pilot new concepts initially
15. Use “information layer” to verify and sustain performance

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Sustainable Performance Improvement Tool

- Empirically validated
- Anonymous annual survey of management and teamwork behaviors
- Results used for supervisor/management development – *not part of formal appraisal process*

1. People who look for better ways of doing things are respected and rewarded in my unit.
 Never Seldom Usually Always

2. I know about and understand the data my unit uses to measure its performance.
 Never Seldom Usually Always

3. While working with others in my unit on a group task, I feel that:
 Everyone shares responsibility for the results
 Only a few people are responsible for the results
 Only the boss is responsible for the results

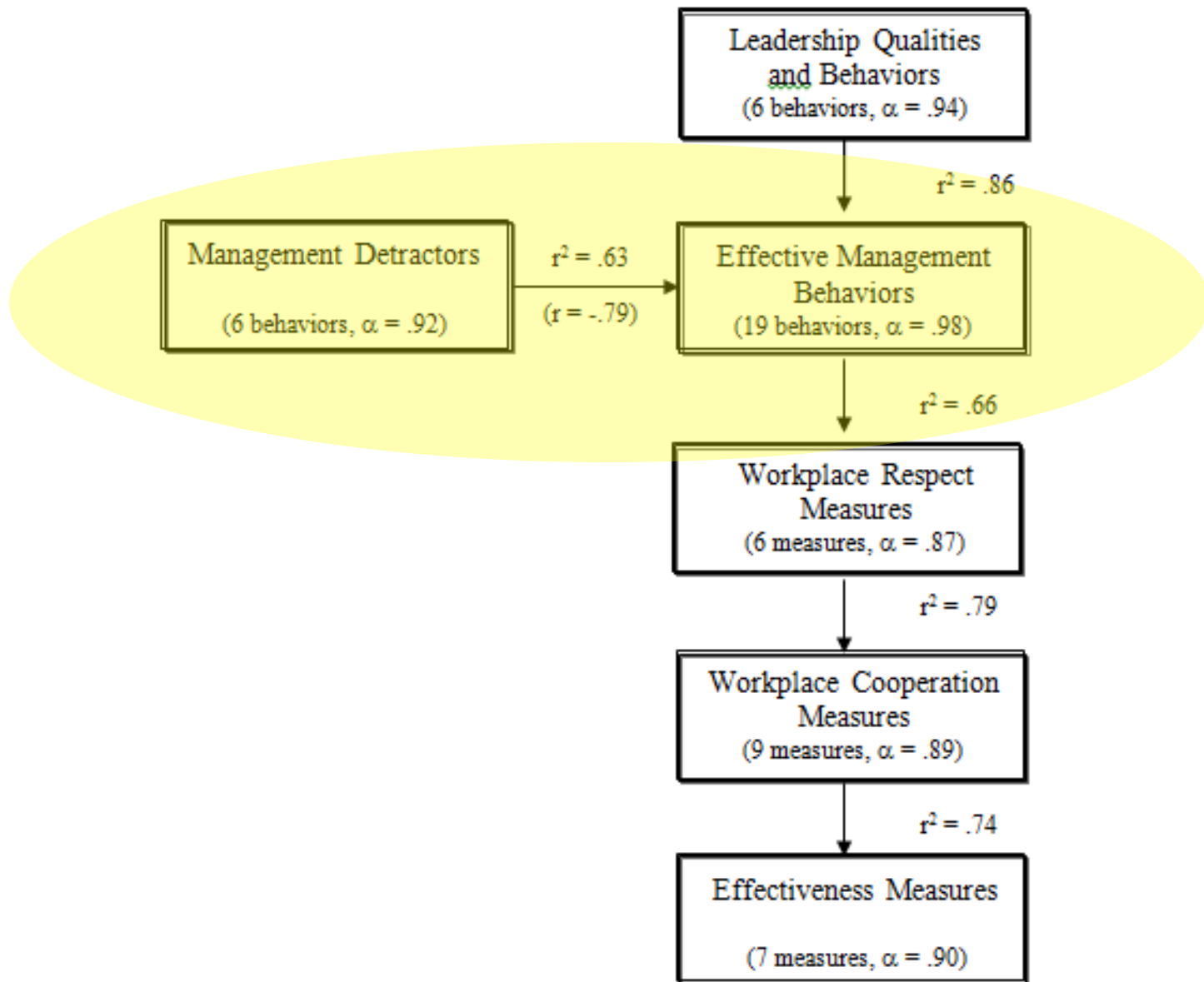
4. My co-workers and I experience a climate of mutual respect at all job levels.
 Never Seldom Usually Always

The following questions pertain to your work group -- those with whom you work closely on a daily basis. Please select one, most applicable response:

5. In my work group a suggestion about the way we do things:
 Is valued even if it's initially the wrong suggestion
 Is welcome but had better be right the first time
 Is not welcome

6. When work problems surface in my work group, my co-workers usually:
 Produce information and ideas that help solve the problem
 Say nothing; keep a low profile
 Produce information that shows why they were not at fault

Measured for Accountability



Effective Management Behaviors

Values New Ideas

**Takes Action to Solve
Problems and Conflicts**

Values Others' Views

Communicates Expectations

**Appreciates Differences
Among People**

Principled

Six Behaviors Guaranteed to Undermine Management Effectiveness

Loses his/her temper
under pressure

Makes some people look good
at others' expense

Discourages bringing up problems

Favors "in" group

Waits until a problem
escalates before acting

Makes subordinates "feel stupid"
when they disagree

Resources

- Empowering Managers to Help Teams Meet Big Goals Implementation Model
<http://betterbuildingsolutioncenter.energy.gov/implementation-models/empowering-managers-help-teams-meet-big-goals>
- Sustainable Performance Improvement
<http://www.abs.uci.edu/resources/sustainable.html>
- Survey of Management and Organizational Patterns
<http://www.abs.uci.edu/resources/deptsurvey.html>

RESULTS

What is a feasible energy efficiency goal?

Facility Type
Laboratory buildings
Classroom and office buildings
Data centers
Housing/residence halls
Modular buildings
Interior illumination
Parking lots and structures
Other exterior illumination
Central plant/energy infrastructure

What is a feasible energy efficiency goal?

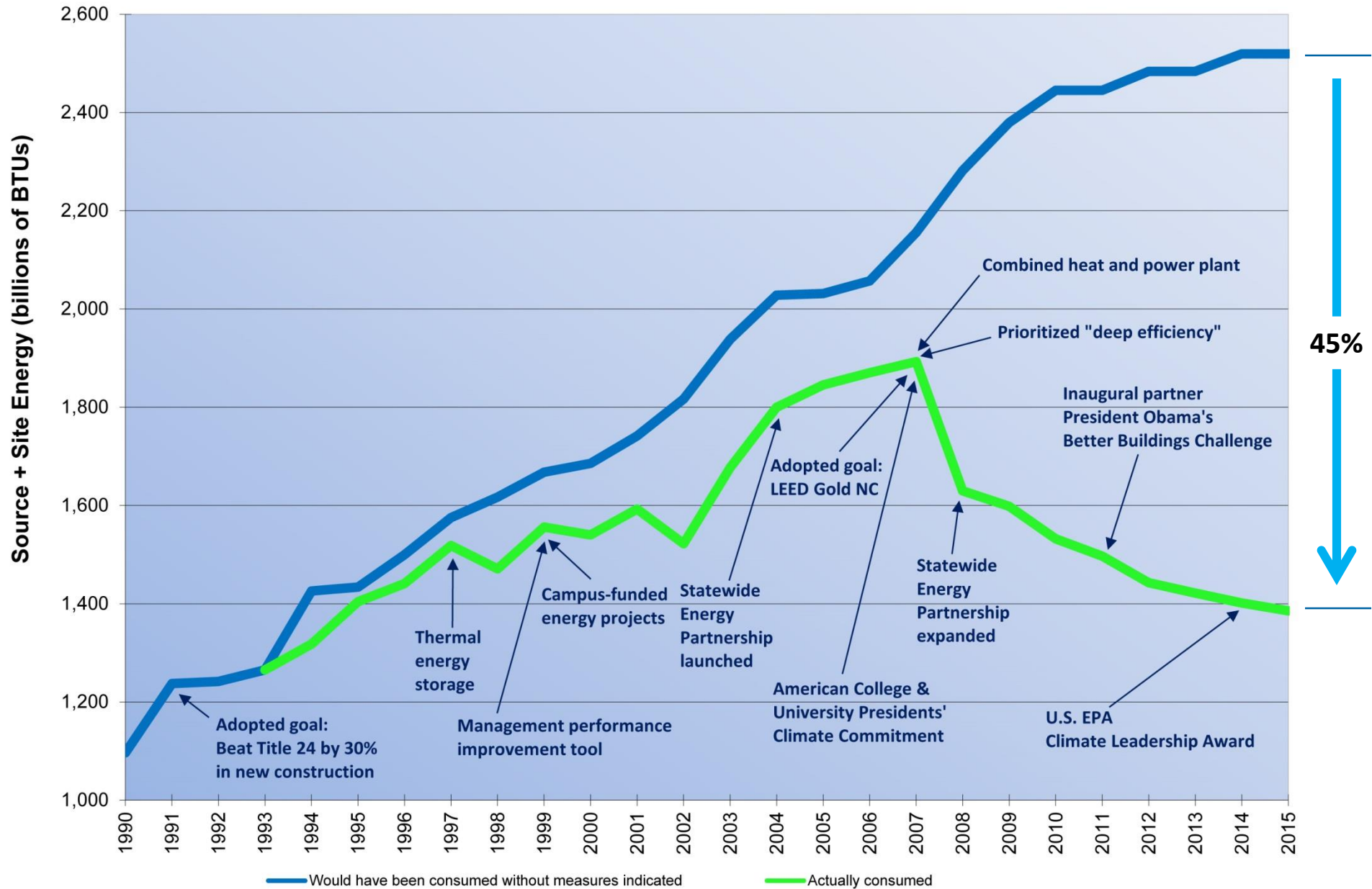
Facility Type	Goal
Laboratory buildings	50%
Classroom and office buildings	50%
Data centers	50%
Housing/residence halls	40%
Modular buildings	50%
Interior illumination	50%
Parking lots and structures	50%
Other exterior illumination	50%
Central plant/energy infrastructure	15%

What is a feasible energy efficiency goal?

Facility Type	Goal	Actual
Laboratory buildings	50%	61%
Classroom and office buildings	50%	50% (pilot)
Data centers	50%	TBD 2016
Housing/residence halls	40%	23%
Modular buildings	50%	TBD 2016
Interior illumination	50%	60%
Parking lots and structures	50%	79%
Other exterior illumination	50%	60%
Central plant/energy infrastructure	15%	25% and rising

UC Irvine

Two Decades of Energy Efficiency



Presented at U.S. Department of Energy's 2015 Better Buildings Summit
Session: Higher Education Meet-Up
Wednesday, May 27, 2015

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Roundtable Discussion

- **What barrier did you hear about that you have faced yourself?**
- **What's the most exciting energy efficiency project you're working on, or will be soon?**
- **What should Better Buildings be focused on in the next year?**

Common Barriers

- *How do I pay for it?*
- *How can I motivate my organization?*
- *How do I reach my community?*
- *How do I engage employees, occupants, and customers?*
- *How do I access data?*
- *How do I use data (or technologies) to track progress?*
- *How can I build expertise within my organization?*
- *How do I partner with my utility?*

Thank You

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