CADMUS

ENERGY
SAFETY, SECURITY, RESILIENCE
CLIMATE
WATER
PUBLIC HEALTH
INTERNATIONAL DEVELOPMENT
TRANSPORTATION
Brad Jones
Principal, *High Performance Buildings*

**Background:** 25 years commissioning, sustainability, energy consulting, ESCO

**Expertise:** Building systems operation, project management, problem solving, team collaboration

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What’s the Difference?

| Retro-commissioning | • Optimize existing systems to meet Current Facility Requirements: “Building Tune-up”  
|                     | • Can identify both operational and capital measures  
|                     | • Does not have to be energy focused |
| Energy Audit        | • Review of existing systems and equipment for energy efficiency opportunities  
|                     | • Capital measure focused, but includes low-cost |
| Facility Condition Assessment | • Review of equipment for maintenance and capital planning |
Retro-commissioning
Are you on target for building performance?

What’s the target?
• ENERGY, GHG, COST
• MAINTENANCE & RELIABILITY
• GUEST COMFORT
Hotel & Arena
Energy Efficiency Focused Study
Utility Incentive Funded
Site Overview

17-story
467,000 SF
Built 1997
235 guest rooms
Restaurant, Kitchen, Conference, Pool, Garage
3 Floors Residential Condos
4,500 Seat Arena
Starting Point: Energy Use

Whole Building Energy Use:
ENERGY STAR
15-minute interval data
Normalization (weather, occ.)

End Use Analysis:
Where is energy being used?
Indicators of potential

Utility Bill Analysis:
Cost impact potential
Case Study – Hotel & Arena

12 Measures Identified
13% Annual $ Savings
4 Year Simple Payback
10 Additional Strategic Opps
Case Study – Hotel & Arena

Bubble size: energy cost savings for each ECM
Hotel & Retail Center

Disclosure Reporting Compliance
Site Overview

Re-commissioning every three years
Large hotel, retail, back of house, garage, theater
Focus on building systems (central plant excluded)
Case Study – Hotel & Retail

8 Measures Identified
$275,000 Savings
1.1 Year Simple Payback
5 Items Further Investigation
6 Additional O&M Items
Case Study – Hotel & Retail

Bubble size: energy cost savings for each ECM
Mass Save Pay-for-Performance

Electric
$0.12 / kWh Saved
(Year 1 Savings)

Gas
$1.20 / Therm Saved
(Year 1 Savings)

Low-cost / No-Cost Measures

Capital: Other programs

1. Screening
2. Application Approval
3. Implement
4. M&V – Year 1
5. Incentive Payment