We’ll be starting in just a few minutes….

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

What topics are you interested in for future webinars?
Strategies for Controlling Energy and Water Use in Leased Spaces

April 5, 2016
3:00-4:00 PM ET
Overview and Agenda

- Welcome & Introductions
- Presentations
  - U.S. Department of Energy
  - Cushman & Wakefield
  - Sprint
- Additional Resources
- Question & Answer Session
# Today’s Presenters

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<th>Name</th>
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<tr>
<td>Cody Taylor</td>
<td>U.S. Department of Energy</td>
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<tr>
<td>Eric Duchon</td>
<td>Cushman &amp; Wakefield</td>
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<tr>
<td>Darrel Carter</td>
<td>Sprint</td>
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Increasing Energy Efficiency in Tenant Spaces
Trends and Feasibility

Cody Taylor
Commercial Buildings
Team Lead
Is Increasing Energy Efficiency Feasible?

- Achieving greater levels of energy efficiency in tenant spaces is feasible through the use of technologies that exist in the market today.

- However, historic challenges have prevented wide-spread adoption of separate space efficiency measures:
  1. The timing and process of leasing and tenant build outs
  2. Significant portion of the market remains unaware of the financial benefits
  3. Tenant market demographics
  4. Owner-tenant “split-incentive”
  5. Inability to collect tenant-specific energy use data
Key Takeaways

There are ways to address the common barriers to improved energy efficiency in tenant spaces, including:

1. Submetering of tenant spaces
2. Tools and resources to compare packages of energy efficient technologies
3. Quantifying the business case for energy efficiency
4. Simple, low-cost energy simulation models for tenant spaces
5. Improving leasing language
6. Recognition of energy efficiency tenant spaces
Submetering of Tenant Spaces

- Submetering is a key foundation for efficiency
- Accurately measure individual tenant-level energy usage – aligning usage and cost
- Submetering helps ensure that each tenant:
  1. Pays for their own energy consumption
  2. Receives the full benefit of their energy cost reductions
There is a need for interactive tools or guidance checklists for build-out to help design teams create efficient spaces.

A good design process will consider energy efficiency technologies as a package of solutions rather than individual measures during a tenant fit-out.

However, comparing the costs and benefits of energy efficiency technology packages is complicated and time consuming, requiring the design team to understand:

1. The energy saving attributes of individual products
2. The interactive effects between technologies
Expanding the Business Case for Energy Efficiency

- Even in lease structures with a split incentive for energy efficiency, building owners can benefit from increased energy efficiency through market differentiation - and in certain markets - command higher rents and longer leases:
  - A growing body of research has shown that energy efficient buildings:
    - Rent for an average premium of 2-6%,
    - Can sell for a premium of as much as 16%,
    - Attract high-quality tenants, and
    - Have lower default rates for commercial mortgages

- More building owners can recognize these benefits by emphasizing energy efficiency’s role in:
  - Reducing total cost of occupancy
  - Making spaces more comfortable and attractive
  - Contributing to improved performance of workers
  - Increasing asset value at time of sale
Accessible, Rapid Energy Modeling for Tenant Spaces

- Investment in accessible, rapid modeling software and guidance will help make energy modeling cost effective for smaller tenant applications

- With energy modeling, design teams can:
  1. Compare different energy efficiency measures
  2. Decide which package of measures is most appropriate for an individual space
Improving Leasing Language

- Energy efficiency-aligned language can be added to traditional building leases to mitigate the landlord-tenant split-incentive problem.

- Where tenants emphasize the value they place on energy efficiency, building owners respond with more efficient spaces.

- Owners and tenants can both make energy-aligned language their default for new leases and find opportunities to increase collaboration around energy efficiency in existing leases.
Federal Recognition of High Performance Tenant Spaces

- A federal recognition program can allow direct comparison of buildings based on energy performance
- This provides the market with ways to:
  - Evaluate building performance
  - Broadcast the value of energy efficiency measures
  - Distinguish high-performance buildings from the rest of the market
Possible dates: uncertain and dependent on congressional funding

- 2016-2017
  - EPA “may develop” a voluntary program to recognize commercial building owners and tenants for energy efficient design & construction in separate spaces.

- 2017-2018
  - EIA to collect tenant energy use data as part of CBECs or
  - EIA to develop capabilities and begin collecting tenant data in future CBECs

- 2021
  - Earliest likely date of tenant data public release from EIA
  - EPA to receive data and begin developing occupancy-based recognition for tenants

- 2022 or after
  - EPA to develop voluntary tenant space recognition program modeled after ENERGY STAR for
Sustainable Site Selection

SUSTAINABLE SITE SELECTION PROCESS:

- C&W Sustainability Strategies and Transaction Management Teams work with our Clients to customize the Landlord Questionnaire and Scorecard to client sustainability requirements:
  - **Landlord Questionnaire**
    - Based on the LEED rating system
    - Sent to landlords to determine the sustainability qualifications of potential sites
  - **Sustainable Site Selection Scorecard**
    - By developing a weighting system and scoring methodology, the sustainability qualifications of all sites are compared
Cushman & Wakefield will reduce its energy costs by an estimated $16.13 per square foot over the 10 year term of our lease at 1 WTC.

- Lighting: $4.40
- Plug loads & controls: $11.73

An investment of ~$14,000 was required to achieve:

- Payback: 1.6 years
- Expected ROI is 404% over the 10 year lease term
- Annual IRR of 21.3%
1 World Trade Center

### Tenant Electricity Costs Over Lease Term ($/SF)

- **Code Compliant**
  - $27.74
- **Good**
  - $23.34
  - $4.40
- **Better**
  - $11.61
  - $16.13
- **Best**
  - $9.65
  - $18.08

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### Energy Performance Measure (EPM)

<table>
<thead>
<tr>
<th>Energy Performance Measure (EPM)</th>
<th>Good</th>
<th>Better</th>
<th>Best</th>
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</thead>
<tbody>
<tr>
<td>1.1 LED lighting</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>1.2 Daylight harvesting</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>1.3 No humidity control in IDF room</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>1.4 High efficiency Tenant HVAC and motors</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>2.1 Energy Star Equipment</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>2.2 Server Power Management</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>2.3 Allow IDF room fans to cycle off</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>2.4 Raise IDF room setpoint from 77 °F to 79 °F</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>2.5 Temperature Setpoints (77 °F cooling, 70 °F heating)</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>3.1 Equipment Power Management (CISCO Energywise or similar)</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>3.2 Lighting Control System (Timeclock and Vacancy sensors)</td>
<td></td>
<td>Y</td>
<td></td>
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</tbody>
</table>
345 California, San Francisco

- High performing downtown office building with highest level of past PG&E program participation in portfolio, engaged us for tenant improvement guidance and incentive support for upcoming project proposals to ownership

- We developed unique tenant improvement guidance document with input from National Resources Defense Council and leveraged for future building assessments
Powerful Ideas Campaign

HANG OUT AT THE WATER COOLER

SAVE PLASTIC.

Last year, Americans threw away 38 BILLION plastic water bottles, about $1 BILLION worth of plastic.

Install a water cooler and reconnect with co-workers.

AVOID TOO MANY UPS & DOWNS

CONSERVE ENERGY. SAVE MONEY.

Conserve energy and save on costs. Keep your thermostat set at 68° in the winter and 76° in the summer.

YOU SNOOZE, YOU LOSE

TURN YOUR COMPUTER OFF.

Turning your computer off vs. snooze mode can save 64 kilowatts per year.

With 77 million Americans working at a computer, that’s a lot of energy.
THANK YOU

Eric Duchon
Director
Cushman & Wakefield
Darrel Carter

Sprint
Sprint Retail Energy Management
DOE Better Buildings
Sprint’s Environmental Program Participation & Awards

- DOE Better Buildings Challenge
- DOE Workplace Charging Challenge
- USGBC LEED
- Carbon Disclosure Project
- Global Reporting Initiative
- Dow Jones Sustainability Index
- Newsweek Magazine Green Rankings
- EPA Electronics Recycling
- EPA Waste Wise
- Energy Star Portfolio Manager
Sprint’s Energy Goals & Progress

From 2007 through 2014, Sprint reduced, greenhouse gas (GHG) emissions by 43 percent and electricity use by 37 percent.

Cumulative Electricity Use Reduction (2007-2014)
1,448,036,000 kWh

Cumulative Cost savings (2007-2014)
$167,919,428
Sprint Retail Portfolio

Total Retail Portfolio: (2,492 Stores):
• Total Sprint Retail ft\(^2\): 6.7 M ft\(^2\)
• Average Retail size: 2,700 ft\(^2\)
• Annual Energy Spend: $10.6M
• Average cost/kWh: $0.13

Sprint Corporate Retail Profile (1,061 Stores):
• Corporate Retail ft\(^2\): 3.3M ft\(^2\)
• Average Retail size: 3,200 ft\(^2\)
• Average Annual Cost/Store: $8,300
• Average cost/ ft\(^2\): 2.59

Sprint/Radio Shack Retail Portfolio (1,431 Stores)
• Sprint/Radio Shack ft\(^2\): 3.4M ft\(^2\)
• Average Retail size: 2,400 ft\(^2\)
• Average Annual Cost/Store: $7,500
• Average cost/ ft\(^2\): 3.12
Retail Energy Management System (EMS) implemented at 1,000+ Stores in 2013

• 15% in total energy cost reduction
• 11M kwh saved/year
• 18 month payback

Other projected Retail EMS benefits include:
• Reduction in response time for HVAC reported issues. The Retail EMS can identify mechanical issues before they affect our retail locations.
• Reduction of maintenance costs and reduced time on site for maintenance technicians.
• Sprint will also implement a proactive unit replacement plan based on unit efficiency

#moveforward
Roof Top Unit Projects

Roof Top Unit Replacement Drivers:
- HVAC Maintenance savings
- Business operation continuity
- Energy savings

Internal Standard Requirements for RTU End of Life Replacement:
- Sprint’s current rooftop unit policies comply with and exceed the requirements outlined in the DOE Rooftop Unit Challenge.
- All Sprint Retail HVAC units are to be reviewed and assessed at least one year prior to end of life expiration.
  - Condition assessment report of HVAC
  - Maintenance History
  - End of Life Expiration
  - Length of lease remaining

Roof Top Unit End of Life Replacement Program 2013 & 2014
- Total Number of Locations: 197
- Total Number of Units: 259
- Total ft² Impacted: 614,332
- kWh reduction: 35%

#moveforward
LED Lighting Program

Sprint has strategically installed **LED lighting in 600+ retail stores**

- reduce electrical usage by **2.8M kWh/year**
- **$290,000** in energy savings/year
- 16 month payback

Sprint has also implemented standards for lighting replacements to ensure energy efficiency lighting upgrades are pursued.

#moveforward
Future State: Intelligent Building Systems
Sprint Energy & Building Analytics - SEBA:

SEBA analyzes the building automation system to identify energy and operational savings.

### Energy & Building Optimization
- Energy Savings
- Remote Operation/Scheduling
- Diagnostics/Programming/Dispatch
- Site Optimization

### Workflow Management
- CMMS Data
- Operating Data

### Data Analysis
- Fault Detection Rules
- Advanced Analytics
- Predictive Modeling

### Data Visualization
- Dashboards
- Performance Reports
Additional Resources
For More Information

• Sprint
  • Better Buildings Challenge Partner Profile
  • Implementation Model: Corporate Goal is a Catalyst for Custom Efficiency Strategies for Office, Retail and Data Assets

• Institute for Market Transformation
  • Green Lease Leaders

• Seventhwave
  • Technology Profiles
  • HPB Magazine: 749 University Row: Madison, Wis. How Development Pays Back
Join Us at the Better Buildings Summit
WHOLE FOODS & HILTON WORLDWIDE

One energy team from Whole Foods Market.

One energy team from Hilton Worldwide.

Swap buildings, in San Francisco, CA.

CLICK HERE TO WATCH THE SWAP WEBISODES 1-3
Additional Questions? Please Contact Us

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