Dive into water and waste savings strategies from BOMA’s W2 Challenge Champions

November 9, 2021
ENERGY STAR Learn From the Best Webinar Series
Partner of the Year Award

✓ Excellence in Energy Management
  • Robust energy management practices & program
  • Address all areas of the ENERGY STAR Guidelines for Energy Management
  • Help define best practices

✓ Leverage ENERGY STAR tools
✓ Excellent internal & external communications
✓ Active in the Partner community
✓ Strong energy performance
✓ Awarded annually

Energystar.gov/awards

Applications are now open and due on December 7th!
Today’s webinar

• Features two ENERGY STAR Partners that were champions of BOMA’s W2 Challenge. They will be sharing examples of how they reduced water and waste in commercial buildings, including in data centers, offices, multifamily properties, and retail.

• The W2 Challenge was a two-year program designed to encourage buildings to benchmark water usage and waste output and implement best practices to improve performance. Participants committed to enter water and/or waste data at least quarterly in ENERGY STAR Portfolio Manager® over the 2018 and 2019 calendar years. Nearly 2,000 buildings from more than 400 cities across the US participated.
Today’s Speakers

• Madeline O’Donnell, ESG and Operations Analyst, Principal Real Estate Investors

• Sormeh McCullough, Senior Manager, ESG, Digital Realty
Dive into Water and Waste Savings Strategies from BOMA’s W2 Challenge Champions

Madeline O’Donnell | ESG & Operations Analyst
November 9, 2021
Contents

Involvement in the W2 Challenge

Strategies for Success

1. Property Manager Training & Partnership
2. Data Collection & Analysis
3. Property Engagement

Implementation Case Studies
Initiation
Data collection and energy efficiency

2008 to 2013
• Begin collection and benchmarking of energy data for office properties
• Become ENERGY STAR Partner

Formalization
Defining the foundations of PRPI

2013 to 2017
• Expand data collection and benchmarking to include multifamily & retail
• Establish utility targets
• Track and report results
• Pilot and operationalize targeted programs

Integration
Embedding ESG across the organization

2017 to 2020
• Expand data collection to include industrial
• Join W2 Challenge to drive water and waste performance
Pillars of Responsible Property Investing (PRPI) initiative

Delivering positive financial results and environmental, social, and governance (ESG) outcomes through best-in-class asset management and fiduciary governance.

Three specific pillars guide our investment approach:

- **Property performance**
  - Delivering enhanced financial and environmental performance through:
    - Benchmarking energy, water, and waste
    - Operational best practices
    - Stakeholder engagement

- **Corporate governance**
  - Managing risk and meeting investor objectives through:
    - Integrity
    - Transparency
    - Managerial oversight

- **Market resilience**
  - Reinforcing the social and economic vitality in markets where we do business through:
    - Equitable contracting
    - Community investment
    - Healthy and productive buildings
Why participate in the W2 challenge

Extension of Principal’s ESG initiatives

- Built on PRPI initiative
- Engage property managers and tenants:
  - Benchmarking in ESPM
  - Monitoring usage
  - Sharing best practices to save water and waste
  - Recognizing achievements
- 178 buildings participated
- Retail, office and multifamily
Strategies for Success: Property Manager Training and Partnership

**ONGOING**
Standard onboarding procedure for new properties and property managers

**MONTHLY**
Property managers enter utility data in ENERGY STAR® Portfolio Manager

**QUARTERLY**
Quality control to check for data irregularities; notify Property Managers as needed.

**ANNUALLY**
Property Manager training with updates on new procedures and expectations
## ESPM Benchmarking: Water

### Five Ways to Enter Bill Data
1. Manual (Instructions here)
2. Use our simple spreadsheet (on the bottom of each meter’s Manage Bills page) to upload or Copy/Paste
3. Use our complex spreadsheet (multiple meters + multiple properties)
4. Hire an organization to electronically enter your data
5. See if your utility offers this service

### Your Property is: Edit
- A Single Building
- Part of a Building
- A Campus of Multiple Buildings

### You Are Tracking: Edit
- Total water consumption for your property
- Partial water consumption for your property

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<tr>
<th>Name Meter ID</th>
<th>Water Meter Type</th>
<th>Most Recent Bill Date</th>
<th>In Use? (Inactive Date)</th>
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Source: Energy Star Portfolio Manager
## Strategies for Success: Data Collection & Analysis

### ESPM Benchmarking: Waste

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<th>Frequency</th>
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<td>10/31/2021</td>
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<td>08/01/2020</td>
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<td>08/01/2017</td>
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</table>

Source: Energy Star Portfolio Manager
ESPM Analysis: Water

Water Use by Calendar Month (Not Weather Normalized)

(Charter current as of 10/29/2021 01:37 PM CDT)
Strategies for Success: Data Collection & Analysis

ESPM Analysis: Water

Water Use by Calendar Month (Not Weather Normalized)

Source: Energy Star Portfolio Manager, 29 October 2021

(Chart current as of 10/29/2021 01:44 PM CDT)
Strategies for Success: Data Collection & Analysis

ESPM Analysis: Waste

Waste and Materials by Calendar Month

Waste by Management Method

Source: Energy Star Portfolio Manager, 29 October 2021
As you may know, Principal Real Estate Investors is participating in the BOMA Water and Waste (W2) 2018 challenge. As part of this initiative, we are sharing BOMA W2's tip of the month for reducing water use impacts:

**Research options for sourcing your existing water supply from alternative water sources.** Facilities can take advantage of onsite opportunities by capturing, treating, and utilizing the water in another application. Potential onsite alternative sources include:

- Rainwater/stormwater
- Foundation drain water
- Treated gray water
- Air handling condensate
- Reverse osmosis and nanofiltration reject water
- Cooling tower blowdown
- Purified water system

Potential uses of onsite alternative sources include irrigation, cooling tower make-up water, toilet flushing, make-up water for decorative ponds, fountains, and waterfalls, and fume hood scrubbers.
BOMA W2 Challenge tip of the month: analyze your building’s waste generation and research recycling options

Here is the September tip from the BOMA W2 Challenge: Understanding waste generation at your property and adopting efficient recycling and composting programs can have a significant impact in reducing hauling costs.

- Contact your waste hauler to understand exactly which materials are accepted in their recycling services.
- Identify what can be recycled starting with the materials that make up the largest portion of your property’s waste stream.
- Expand recycling collection beyond paper; consider adding cardboard, plastics, and glass.
- Identify unique waste streams and ensure these materials are separately sorted and properly recycled. Items may include lightbulbs, pallets, electronic waste, batteries, and plastic bags.
- Consider local donation programs for unconsumed food from a cafeteria or kitchenettes.

Key resources: Waste Management’s 6 Steps to Better Business Recycling suggests the first few steps to undertake in tackling a recycling program. Earth911 offers a comprehensive “How to Recycle” guide that provides consumers and businesses with information on hundreds of different materials. Additionally, the U.S. Composting Council offers A Guide to Workplace Composting.
BOMA W2 “Every Drop Counts” webinar

If you missed BOMA W2’s “Every Drop Counts: Water Efficiency Solutions for Your Property” webinar, don’t worry the recording will be up soon! Russ Homer, the President of Water Management Inc., and Jason McIntyre, Director of Real Estate Operations and Sustainability at USAA Real Estate, discussed the latest water management trends and how to achieve significant water savings at your property through a variety of low-cost solutions.

This webinar is one of many in the W2 Challenge series, which will continue into 2019 in order to help provide building owners and managers with the insights needed to improve water and waste performance at their property. Learn more here.
As you may know, Principal Real Estate Investors is participating in the BOMA Water and Waste (W2) 2018 challenge. As part of this initiative, we are sharing BOMA W2’s tip of the month – tune up your irrigation system. Please review the best practices below and implement feasible items at your property:

- **Inspect your irrigation system(s)** and check for leaks and broken or clogged sprinkler heads.
- Consider asking janitorial, parking, engineering, and security teams to be on the lookout for pooled water and leaks.
- If possible, update to a **weather-based irrigation controller** than can adjust its watering schedule according to seasonal weather conditions.
- Implement a **landscape-specific cycle** and soak schedule to account for differences in soil type and slopes.
- Schedule your irrigation system to account for the types of plants and sun exposure in each area.
- Install a **micro-irrigation system** for appropriate gardens, trees, and shrubs.
As you may know, Principal Real Estate Investors is participating in the BOMA Water and Waste (W2) 2018 challenge. As part of this initiative, we are sharing BOMA W2’s tip of the month – make recycling easy, convenient, and fun. Please review the best practices below and implement feasible items at your property:

- **Install more recycling receptacles** across your property, and make sure they’re properly labelled and distinguishable from other receptacles (mixed recycling, compost, landfill).
- Encourage recycling by **removing deskside trash bins** and replacing them with **deskside recycling bins**, so that occupants can throw away trash only in common areas.
- Create a **waste management team** and recruit representatives from different areas of your organization.
- Increase awareness by **educating staff** on proper waste disposal processes and the importance of recycling and composting:
  - Hold regular **refresher meetings** to ensure recycling and composting practices become routine procedure and discuss any changes that have been made to waste management programs;
  - **Post fact sheets and informational posters** in kitchenettes and common areas;
  - **Send staff-wide emails, newsletters, or other announcements** discussing waste management programs and processes.
- Motivate employees to participate by **creating competitions and implementing incentives**.

**BOMA W2 Challenge tip of the month: make recycling easy, convenient, and fun**
Property implementation: Hardin House

- Staff training from waste management
- Move-in meeting – recycling and composting
- Instructions for recycling, compost, and landfill
- Compost collection bins for paper towels
- Compostable garbage bags
- West Campus Move-Out Initiative
Property implementation: Green Firs Towne Center

- Landscape renovation with water management
- Inspection and winterization of irrigation systems
- Recycling and e-waste throughout common areas
- Maximize container removal efficiency
- Proactive waste volume monitoring
- Tenant engagement
Property Implementation: Park Place

- Replace all manual faucets, toilets, and soap dispensers
- Filters on cooling tower to reduce water deposits
- Battery and toner recycling stations on campus
- Bi-annual e-cycle events
- Organics recycling program
- E-newsletter for tenant engagement

Read the Park Place Sustainability profile at: https://www.principalglobal.com/principal-real-estate-investors/knowledge/insights/sustainability-profiles
Success and next steps

From 2010 to 2020 we accomplished:

- **12.8%** water use reduction
  - exceeding our 10% goal
- **16.3%** waste diversion
  - exceeding our 10% goal

Success in water and waste savings led by:

- Property manager training & partnership
- Data collection & analysis
- Property engagement

Future:

- Setting more aggressive utility targets
- Replicate our success in water and waste savings
Important information

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Thank you!

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Dive into Water and Waste Savings Strategies
SORMEH MCCULLOUGH | SR. MANAGER, ESG
NOVEMBER 2021
GLOBAL provider dedicated to the full customer spectrum from ENTERPRISE colocation to HYPERSCALE

4,000+
GLOBAL CUSTOMERS

290+
DATA CENTERS (1)

170,000+
CROSS-CONNECTS

Selling GLOBALLY…Supporting LOCALLY

INTERCONNECTION

COLOCATION

SCALE

HYPERSCALE

Note: Data as June 30, 2021, unless otherwise noted.
1) Includes unconsolidated joint venture and held-for-sale data centers. Excludes development assets that are not currently in the operating portfolio and does not reflect recently announced Mapletree transaction.
Global Sustainability Leadership
Environmental Responsibility Enhances our Business Strategy

**Renewable Energy**
LEADING PURCHASER OF RENEWABLE ENERGY
- Global, science-based carbon reduction commitment (SBTi)
- 100% renewable energy for Europe and US colocation business
- 50% global renewable supply

**Green Buildings**
LEADING THE DATA CENTER INDUSTRY IN GREEN BUILDING CERTIFICATIONS
- 43% of Global Portfolio Green Building Certified
- 61% of certifications gold level and above

**Efficiency**
MORE ENERGY STAR CERTIFICATIONS THAN ANY OTHER DATA CENTER PROVIDER
- 2020 and 2021 ENERGY STAR Partner of the Year Award recipient
- 70% of U.S. portfolio ENERGY STAR-certified
- BOMA W2 Challenge Participant

**Green Bond**
EXECUTED FIRST DATA CENTER INDUSTRY GREEN BOND
- ~$6.0 Bn in green bonds issued since 2015
- Largest US REIT issuer of green bonds

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1 Data as of December 31, 2020
Digital Realty and ENERGY STAR

2015 - 2016
• Begin benchmarking in Portfolio Manager
• First Energy Star Certification

2016 - 2018
• Expansion of benchmarking and certification
• Join BOMA W2 Challenge Participation
• Publish 1st annual ESG Report

2018 - 2021
• Become Energy Star Partner
• Energy Star Partner of the Year 2020

Digital Realty Certified Data Centers

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<th>Year</th>
<th># of Certified Sites</th>
<th>Million Square Feet</th>
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<tr>
<td>2016</td>
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</tr>
<tr>
<td>2021</td>
<td>9</td>
<td>9</td>
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</table>
YOU CAN’T MANAGE WHAT YOU DON’T MEASURE…

- **100%** SITES BENCHMARKED IN ENERGY STAR PORTFOLIO MANAGER
- **100%** ENERGY CONSUMPTION DATA COVERAGE
- **83%** WATER CONSUMPTION DATA COVERAGE
- **78%** WASTE GENERATION DATA COVERAGE

**Use the right metrics for your property type:**
- *Water Usage Effectiveness (WUE)*
- *WUI (kGal/SF, kGal/kW)*
Evaluating Water Scarcity

- World Resource Institute’s Aqueduct Tool
  - [https://www.wri.org/aqueduct](https://www.wri.org/aqueduct)
- Climate Risk Platforms
  - GRESB Physical Climate Risk Tool
  - Measurabl PCRx
- Water Risk Monetizer Tool
  - [https://about.smartwaternavigator.com/](https://about.smartwaternavigator.com/)
Maximize ‘free cooling’ to reduce demand for water

Prioritize cooling system designs that minimize or eliminate water usage (e.g. dry cooling, adiabatic cooling)

Utilize shared cooling solution such as district chilled water and river water cooling loops

Implement sub-metering for cooling systems to measure and manage water usage

Data centers, because of their 24-7-365 cooling loads, may use as much as 3.7 times more water per square foot than office properties
Utilize non-potable water supplies for landscape irrigation and cooling systems

Global Water Consumption and Water Intensity

1Data excludes properties where Digital Realty does not have operational control. Non-potable water includes municipally reclaimed and onsite recycled water. Decreases in water consumption in 2020 may be a result of impacts from COVID-19.
Waste Audit Example

**Landfill Waste Composition**

- **Recyclables, 16.2%**
- **Plastic, 4.8%**
- **Paper, 5.1%**
- **Cardboard, 1.3%**
- **Metal, 4.6%**
- **Batteries, 0.1%**
- **Cartons, 0.3%**

**Landfill Waste, 62.6%**

**Waste by Management Method**

- **Recycled: 33.35%**
- **Disposed: 66.65%**
Waste Best Practices

1. Order larger waste and recycling bins for common areas
2. Provide clear signage for recycling and waste bins
3. Work with haulers to provide waste and recycling metrics
4. Right-size front load dumpster service frequency
5. Optimize location of dumpsters
6. Implement a compost stream
7. Implement wood pallet recycling
8. Request breakroom coffee supplier to provide packet recycling
9. Use reusable kitchenware
10. Replace breakroom single use products with BPI-certified products
11. Promote ongoing awareness at site (signs, communications)
12. Remind janitorial team to dispose of plastic supply bottles in recycling
Summary and What’s to Come

NEXT STEPS

1. Improve waste benchmarking
2. Implement Global Water Strategy across prioritized sites
3. Report on WUE metrics

1. Benchmark
2. Use sector-specific metrics
3. Assess water risk
4. Find ways to reduce
5. Find ways to recycle
6. Think globally, act locally
THANK YOU!

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Upcoming ENERGY STAR Award Winner Webinars

December 9 @ 1 PM EST

Working Together to Save Energy: Employee Engagement Strategies

Register here:
https://www.energystar.gov/buildings/training/learn_best
Upcoming Industrial webinars

December 9 @ 1 PM EST  **Bakeries**

**Speakers:**
- Weston Foods’ ACE Gaffney, South Carolina
- Winnipeg, Canada commercial bakeries

[Register here](#)
Questions?