

The Wharton School

Wharton Operations 2016 Sustainability Report

In 2007, University of Pennsylvania President Amy Gutmann signed the American College and University President's Climate Commitment (ACUPCC). This pledge committed Penn to develop plans for long-term reduction of its emissions of climate-altering greenhouse gases with the long-term goal of carbon neutrality by 2042. The ensuing 2009 Climate Action Plan, and the follow-up CAP 2.0 in 2014, laid out strategies to achieve this goal, as well as the means to track and communicate progress to the Penn community and external audiences.

In support of Penn's Climate commitment, Wharton developed a sustainability mission "to advocate for the University of Pennsylvania's campus-wide greening efforts by identifying and implementing substantive reductions in the environmental impact of the Wharton community that demonstrate leadership and sustainability on behalf of our students, faculty and staff." Wharton Operations maintains a leadership role in this mission by creating and executing a vision of environmental sustainability through management of Utilities & Operations, the Physical Environment, Waste Minimization and Outreach & Engagement and assisting with Academic goals where feasible. The below is a review of Wharton's 2016 efforts:

Utilities & Operations

Target: *Promote and adopt best practices in energy management, design and maintenance to improve efficiency and reduce Penn's carbon footprint.*

Wharton Status Update: *Wharton's facility improvements continue to address energy and environmental concerns:*

- Wharton's on campus buildings (Jon M. Huntsman Hall, Steinberg Hall Dietrich Hall, Vance Hall, Lauder Fischer Hall, Colonial Penn Center [*electric only*] and Steinberg Conference Center) used 55,919,061 kWh equivalent of energy (electric, steam and chilled water) during the 2016 calendar year – the equivalent to the average energy consumption of 5171 homes ([US Energy Information Association](#)). The consumption breakdown summary by energy type is: 41% steam, 31% Chilled Water and 28% Electricity; by building: Huntsman 54.7%, SHDH 12.9%, Vance 15.8%, Lauder Fischer 1.9%, SCC 14.9%. The total is a 2.1% decrease (absolute; 2.7% normalized) over 2015 energy consumption; the greatest decrease occurring with steam usage (1.1% absolute; 5.2% normalized). Of the buildings, Lauder Fischer saw the biggest energy savings over 2015 with a 24.8% drop in energy consumption, while Huntsman saw a 0.9% increase in energy usage.
- Wharton Operations, in partnership with University Facilities, completed the final phase of the SHDH building wide HVAC upgrade. Started in 2013, the project addressed multiple HVAC issues, replacing air handlers and building controls systems with more efficient and dependable technology. This, in turn, freed up limited electrical capacity to the building. Energy meters were not in place at the start of the project, so a total project energy savings is not available; however, SHDH experienced a 7.7% (absolute; 8.3% normalized) decrease in energy consumption over 2015 indicating a steady downward trend based on available energy data.
- Based on Huntsman Hall's 2009 LEED-EBOM pilot project recommendations, design was completed for a series of HVAC system upgrades and recommissioning. The first phase, scheduled for February 2017 on the 8th floor, will replace 25 VAV's with Phoenix valves and install Aircuity CO2 sensors. A future, as yet unscheduled, Phase 2 will convert the remaining 8 floors from VAV to Aircuity: replacing 540 VAV's with Phoenix valves and installing Aircuity CO2 sensors. Energy data will be benchmarked during this process.
- Aramark completed retro/re-commissioning of Huntsman Hall's Heating & Ventilation Units HV-1, 2 and 3, Chilled Water System, Reheat Hot Water System and Radiation Hot Water System discovering \$9,903 in possible future cost avoidances with a 1 year simple payback after investment, saving 6957 kWh of electricity and 332 MMBtu of steam.

- Design is complete to upgrade Huntsman Hall's lighting controls with Lutron QS system in a multi-phased approach during the 2017 summer. The upgrade additionally provides centralized lighting control for Huntsman and SHDH via Quantum's facility management software.
- Wharton Operations monitors HVAC equipment daily in all Wharton buildings to control, report and correct temperature and energy use anomalies.
- Bi-monthly reviews with FRES Energy Managers on energy data for each of Wharton's buildings has helped to reveal anomalies and trends which, after correction, save energy, operating costs and prevent system failures (reference Lauder Fischer energy savings above related to faulty pneumatic controls).
- Wharton continued its participation in weekly peak load meetings with central facilities to strategize about energy cost saving measures during peak load months (June – August). When notified of expected "Red Days", a known peak 5 hour of electricity use, Wharton works to reduce load as much as possible by coordinating the shutdown of HVAC equipment and contacting the Wharton community to advise them of the situation to shut off, or minimally use electrical appliances to the greatest extent possible.
- Wharton Operations maintains a policy to shut-off the escalators in Huntsman Hall between the hours of 10 pm and 7 am every night during the summer and off completely over winter break and other holidays.

Physical Environment

Target: *Create and maintain a sustainable campus by increasing green space, decreasing building energy consumption, and increasing education and awareness of sustainable design.*

Wharton Status Update: *Wharton's capital projects address energy conservation and innovative green building practices:*

- [The Larry Robbins House](#) for Penn's M&T Program, a joint project between Wharton and the School of Engineering and Applied Science and currently under construction, is targeting LEED-NC, v2009, Silver Certification.
- Wharton Operations completed 3 summer projects utilizing Penn's [Green Guidelines for Renovations](#).
- Wharton completed (4) Lactation Suites in Huntsman Hall. Each Room includes Greenguard Gold certified furniture finished with a cleanable, anti-microbial fabric and moisture barrier to protect against germs and bacteria and inner foams and fabrics free of chemical flame retardants. All finishes, including paint, ceiling tiles, floor covering and millwork, contain low or Zero-VOC materials.
- Wharton Operations successfully researched and coordinated a pilot for the 4th floor Vance Hall painting project to utilize Zero Emissions, Zero VOC and certified asthma and allergy friendly coatings due to high allergic sensitivity of staff members.
- Jon M. Huntsman Hall received Philadelphia's TOBY Award for "Best of the Best" in Green Practices from the [Building Operations Managers Association \(BOMA\)](#).

Waste Minimization & Recycling

Target: *Improve Penn's environmental performance by minimizing solid waste through community education, strategic purchasing, appropriate infrastructure and proper disposal, strengthened by relevant and accurate metrics. Increase recycling rate to 30% by 2019, and continue to reduce overall municipal solid waste.*

Wharton Status Update: *Wharton Operations continues to address implementing effective recycling and compost strategies while looking at other means to reduce our total waste stream:*

- Wharton performed a waste audit on Huntsman Hall and SHDH in April 2016. The audit found an actual waste diversion rate of 21.4% in Huntsman Hall and 42.3% in SHDH with a potential diversion rate of 68% and 74.5% respectively. Rates continue to climb from its lowest levels in 2013 due, in part to the inclusion of composting at Joe's Café and select offices, while total trash waste decreased. Identifying contamination levels, observations and recommendations from the audit forms the basis of Wharton Operations *Green Campus* outreach programs on effective waste management.
- Wharton completed the installation of 13 additional water bottle filling stations in Huntsman Hall, SHDH, Vance Hall and Lauder Fischer Hall, for a total of 19, providing access to bottle filling stations in all public areas. For 2016, over 306,100 water bottles were saved from the waste stream; the equivalent of lining 16 oz. bottles up side-by-side for 12.1 miles. Since the start of the program in November 2013, the bottle fillers have offset over 900,000 plastic bottles. (Note, metrics do not include departmental water dispensers (i.e. Quench) which would increase this figure significantly).

- Construction waste management on Wharton interior renovation projects and storage clean-outs diverted 25.35 tons, or 79.3%, of construction debris from the landfill through Penn vander Revolution Recovery.
- Wharton Operations participation in the [Carpet America Recovery Effort \(CARE\)](#) Program for general carpet replacement projects diverted 6516 pounds of carpet from landfills.
- Wharton Operations participation in [The Reuse Network \(IRN\)](#) donated 350 pieces of surplus furniture totaling 10,995 pounds in lieu of recycling or sending to the landfill. The pieces were shipped within Philadelphia for relief efforts through IRN's non-profit partners.
- Wharton Computing and Information Technology (WCIT) recycled 20,251 pounds (over 1600 pieces) of used computer equipment in 2016, including monitors and TV's, servers, printers, wiring and misc. steel.
- Wharton's annual Office Clean-up Day initiative generated 1272 pounds of electronic waste, batteries and compact fluorescent bulbs for recycling.
- Wharton Operations' Special Events Manager pre-certifies all caterers on a policy of zero waste for all Wharton events.

Outreach & Engagement

Target: *Build a culture of sustainability that informs all constituents of University life.*

Wharton Status Update: *Wharton Operations addresses the efforts of staff, faculty and students to green their daily activities and be aware of their impact:*

- Wharton Operations rebranded its sustainability initiatives as "Wharton Operations *Green Campus*" to better align the identity and goals of the program with Wharton Students and the Penn community.
- In achieving Level 4 certification in the [Green Office Certification program](#), Wharton's Finance and Administration Department achieved one of the highest scores ever awarded in the program with a score of 202.5 points.
- In achieving Level 4 re-certification in the [Green Office Certification program](#), Wharton Operations achieved the highest score ever awarded in the program with a score of 237 points.
- Working in partnership with Penn's Green Campus Partnership, Vance Hall 4th floor will pursue [Green Office Certification](#) as a pilot to combine multiple small departments under a single certification.
- Wharton Operations *Green Campus* has lead an effort this year to engage the Wharton community in sustainability initiatives by lobbying faculty and staff members to become [Eco-Reps](#) and re-instituting Green Teams within the School. Eco-Rep membership has increased from 5 members in 2015 to 10 currently (plus 4 additional student Eco-Reps). The first Green Team meeting is scheduled for January 2017.
- Wharton's Finance and Administration department conducted a survey to gain feedback on how the Wharton Office Clean-up Day is communicated and overall satisfaction with the annual event. Feedback, including event timing and additional recycling opportunities for other materials, such as books, will be incorporated into future collection events.
- Wharton Operations participates in monthly University-wide Sustainability Coordinator discussions and attends regular Environmental Sustainability Action Committee (ESAC) and sub-committee meetings.

Academics

Target: *Expand opportunities for teaching, learning and researching sustainability among students, staff and faculty.*

Wharton Status Update: *Wharton Operations continues to make climate change and sustainability part of the educational experience available to all students and supports the growth of student sustainability programs:*

- In the fall semester, Wharton Operation reinstated the Wharton Student Sustainability Advisory Board. The SSAB is sponsored by and works directly with Wharton Operations to support and advance the Wharton Schools sustainability objectives which include promoting environmental stewardship, reduction of our footprint, the development of sustainability leadership and community engagement and is the only board at Wharton to be comprised of both MBAs and Undergraduates.
- Wharton Operations continues its partnership with the Wharton [Initiative for Global Environmental Leadership](#) (IGEL), contributing blog posts and participating in seminars and speaker panels.