

School of Engineering & Applied Science

2016 Sustainability Report



Penn Engineering

Academics

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

- Energy and Sustainability (ENSU) Minor is offered by SEAS.
- Over 15 classes are available regarding sustainability within CBE, MEAM, MSE, ESE, and EAS departments.
- Fall of 2016, MSE opened a new area of specialization to undergraduate students called Energy Conservation and Storage.
- Pennergy and Enerfront enhance collaboration between researchers in energy/sustainability across varied disciplines in SEAS and SAS.
- Vagelos Integrated Program in Energy Research (VIPER) enrolls students interested in energy science and engineering.
- Penn Electric Racing took second place in the 2016 FSAE Electric competition in Lincoln Nebraska.
- MSE student internships include engineers at GT Advanced Technologies and DNV Energy.
- AESOP is developing materials designed from plant/animal motifs to impact the human habitat in water, heat and light mgmt.
- ESE received the 2016 Department of Energy CLEANTECH Prize (regional) to further their efforts in developing a data-driven Demand Response recommendation system for volatile energy markets.

Physical Environment

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

- GRW Phase 2 has been awarded LEED CI Silver Certification. 5 additional SEAS LEED projects are registered for certification (Towne 1st floor, Pennovation, 3537 Locust Walk, 3401 Walnut 4th floors B+C and A wings).
- The Pennovation project recycled 191.7 tons, and Towne renovation project recycled 99 tons of construction debris.
- Approximately 3.5 tons of furniture was reused within the complex instead of trashed or sent to a recycling facility.
- 19 tons of small renovation trash and furniture was recycled through Revolution Recovery.
- 10 water bottle filling stations have been installed at SEAS. These units have counted over 150,000 diverted water bottles this year.
- All carpet and textiles installed within SEAS have a minimum of 45% recycled content, are NSF 140 and CRI Green Label Plus.

Waste Minimization & Recycling

Target: Improve Penn's environmental performance by minimizing solid waste through education, purchasing, infrastructure, and proper disposal. Increase recycling rate by 30% by 2019.

- SEAS is promoting deskside recycling through green office certifications and renovation projects.
- SEAS held 2 book swap events, donating about 400 books to the Vietnam Book Drive Project and Better World Books.
- 13 Battery Recycling Boxes recycled near 200 lbs of batteries.
- The SEAS Recycling Center recycled 24.4 tons of materials in 2016 in addition to central stream recycling.
- Keurig Recycling Grounds to Grow On recycled near 200 lbs.

Utilities and Operations

Targets: 7% total carbon reduction in buildings by 2019 in comparison to the FY14 baseline. 10% energy reduction in buildings by 2019 in comparison to FY14 baseline.

- SEAS/SAS are studying 2 large Century Bond projects for LRSM: hallway lighting replacement and HVAC replacement.
- SEAS Operations provides Smart Strips that reduce energy usage by synchronizing and turning off devices.
- Operations is testing and retrofitting older can lighting with LED lights in restrooms and hallways.
- Housekeeping protocols require less chemical stripping and more equipment that uses water only.

Communications, Outreach and Engagement

Goal: Develop communications to inform the Penn community and key external stakeholders about the goals of the *Climate Action Plan*. Build a culture of sustainability that informs all constituents of University life.

- The SEAS Green Team promotes sustainability events and information for the SEAS Recycling Center, Penn recycling/waste streams, energy reduction strategies and culture change.
- A SEAS furniture reuse list serv has been created for 33 staff members to reuse furniture within SEAS before reusing within Penn or recycling through Revolution Recovery.
- SEAS, SAS and FRES organized the group EnerFront to increase collaboration in Energy and Sustainability throughout campus. This group managed Energy Talks and collaboration lunches for faculty/staff.
- 11 Green Office Certifications have been completed in SEAS, levels 2-4.
- The SEAS Green Team hosted the annual Sustainability Fair for the ReThink Campaign focusing on waste, recycling, catering, Green Purchasing Awards, education, alternative transportation, water, power reduction, and collections for books, electronics and batteries.
- The SEAS Green Team toured the Penn Arboretum to learn about green building design and sustainable agriculture and farming.
- MEAM and the SEAS Green Team are creating an energy focused research internship application for approval in 2017.