

**Office of
Sustainability**
Environmental
Impact Report
2016-2017



THE UNIVERSITY OF
TENNESSEE
KNOXVILLE

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The University of Tennessee has been widely recognized as a leader in resource conservation and environmental stewardship. In the 2016–17 academic year, UT made great progress toward reducing the environmental impact of campus operations.



Engagement

With more projects and initiatives in progress than ever before, UT faculty, staff, and students are making sustainability a priority on campus and in our communities.

CAMPAIGNS

MY TINY TRASH

A **waste reduction pilot outreach campaign** within the Facilities Services Complex at UT to **promote waste awareness and environmental stewardship**.

THE MUG PROJECT

Students, faculty, and staff can bring their own mug of 24 ounces or less and receive a discount on their drink.



DISCOUNT

\$1.19 drip coffee and fountain beverages, a savings of 40 cents or more, and 15 percent off specialty coffee beverages.



90% PARTICIPATION

More than **90 percent of Volunteer Dining locations are participating**, including Starbucks, Einstein's, Quiznos, and Subway.



BRING YOUR MUG

UT's 27,000 students **use an estimated 3,225 cups per day**. Over the course of a year, that requires **485 trees, 290,000 gallons of water, and 360 million BTUs of energy**—enough to power four households for a year.

GREEN OFFICE PROGRAM

Focused on breeding a healthy, competitive, and environmentally conscious work environment for UT employees, the Green Office program is **designed to aid in UT's progress** toward becoming a Top 25 research university by **instilling sustainable practices in a variety of workplace settings across campus**. The Office of Sustainability works with Green Office partners to develop strategies and provide support, resources, and supplies, personalized to the specific needs of each participating office.



GREENHOUSE LLC



The Greenhouse is a **Living & Learning Community** for freshmen looking to incorporate sustainable practices and principles in their daily lives while living on a college campus.

EVENTS

POWER CHALLENGE

The POWER (Programs of Water, Energy, and Recycling) Challenge is a way for the UT community to demonstrate its commitment to reducing the university's environmental impact. The POWER Challenge is a **monthlong competition that pits residence halls against each other in a battle** to see which hall is the greenest.



WINNER

2016's winner: Carrick Hall



2016 POWER CHALLENGE RESULTS

Residence halls **decreased their energy usage by 16.5 percent, decreased water usage by 13 percent, and recycled 21,385.7 pounds** of waste (not including cardboard).



COST SAVINGS

Saved \$75,813.10 in combined energy, water, and waste disposal costs from the residence halls during the month of October.

Academics
UT students recognize sustainability is a rapidly growing interdisciplinary field with practical applications across virtually all sectors of the global workplace.

SUSTAINABILITY MAJOR

The **sustainability interdisciplinary major** started in 2012 and has rapidly grown in numbers each year. We are proud to announce that the sustainability major will be moved from interdisciplinary status to become a standalone major within the Department of Geography for the upcoming academic year.

SUSTAINABILITY
FOCUSED

42 MAJORS | 9 MINORS



71.88%
of all departments feature at least one sustainability course offering.

UNDERGRADUATE

62 FOCUSED | 124 RELATED

GRADUATE

50 FOCUSED | 201 RELATED

EXPERIENCE LEARNING

UT is dedicated to providing students with more opportunities to apply the knowledge, skills, and values learned in the classroom to real-world challenges.

CLASSES

The Office of Sustainability works with professors from a variety of departments to involve their students in environmentally related projects and campaigns.

7 OPEN PROJECTS | 15 IN THE LAST ACADEMIC YEAR

ACTIVE PROJECTS

Mug Project Data Collection: Since 2013, the OOS has been providing projects for students from John Nolt's Philosophy 346 course. Most recently, the students conducted a **Mug Project audit and survey to assess the effectiveness of the campaign.**

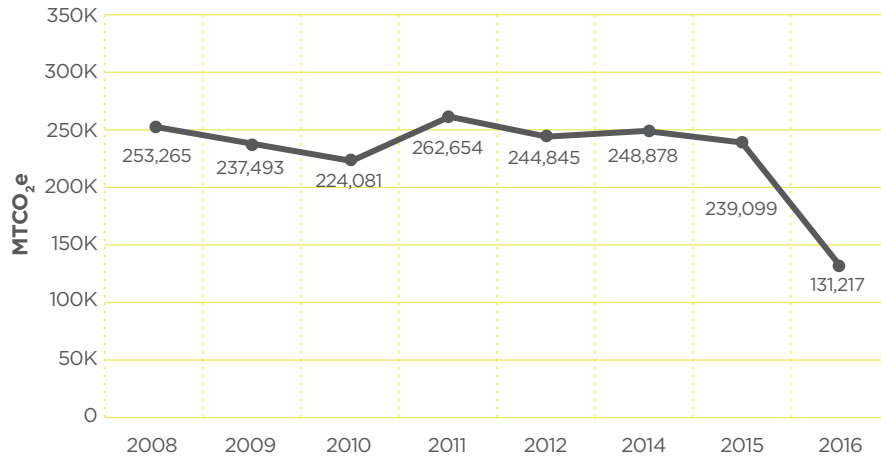
Conceptual Surveys: In spring 2017, OOS began working with Jeff Larsen's Psychology 482 course to **conduct a series of conceptual surveys** to gain insight into **energy reduction practices, fleet management behavior, environmental literacy, sustainability culture,** and **transportation decisions** related to mass transit.

Case Study on Neyland Stadium: A graduate student in recreation and sport management is working with the OOS to complete a case study on **sustainability operations and initiatives at Neyland Stadium.**

GREENHOUSE GASES CHART

 **48.19%** REDUCTION
IN NET EMISSIONS
SINCE 2008

CHANGE IN METRIC TONS OF eCO₂ OVER TIME



— net emissions

Due to improved GHG reports, there may be some discrepancies.

CLIMATE ACTION PLAN

UT's Climate Action Plan was developed by Facilities Services with major support from OOS, UT Recycling, the CCE, and the Office of the Chancellor, and was first published in 2010. This document presents a conceptual approach that the university can adopt in order to achieve **climate neutrality and integrate sustainability and climate change into the curriculum and educational experience** of all UT students.

Currently the CAP is undergoing an update, led by the OOS and the CCE. The first draft will be available for public comment in fall 2017.

RECS (RENEWABLE ENERGY CREDITS)

Each year, the Green Fee pays for renewable energy credits to offset 36 percent of the university's purchased electricity with green power. The program was reevaluated last year and is now able to offset roughly 70 percent of emissions produced through on-campus cogeneration, other stationary sources, fleet transportation, refrigerants and chemicals, fertilizers, and purchased electricity. This move also takes UT from **number 10 to the number one spot nationally as the largest consumer of green power in academia.**



Saving the university
-\$96,000 per FY



100% of
purchased
power offset



#1 consumer of
green power in
academia



Green-e
Energy
Certified



99.1% wind, 0.9% solar
sourced from
IL and TN

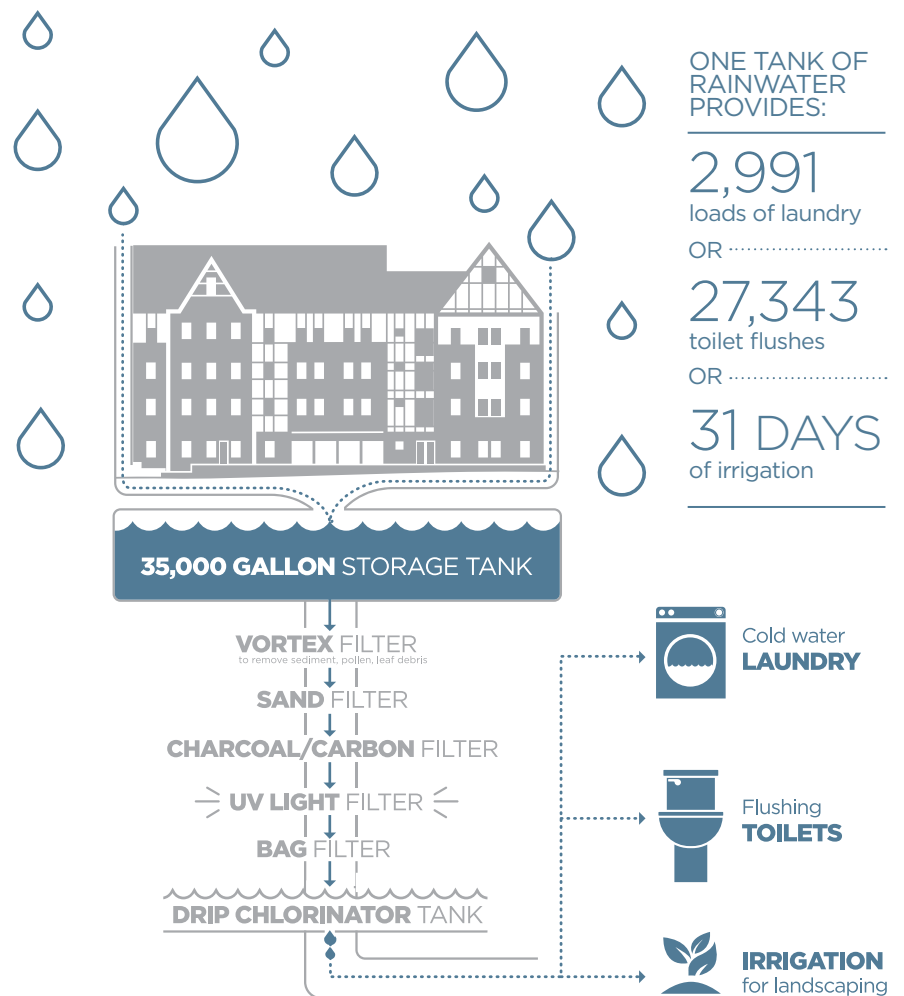
Energy & Emissions

Reducing UT's greenhouse gas emissions footprint and our reliance on fossil fuels is at the heart of our efforts to become a more sustainable campus. It's also saving our campus millions of dollars each year.

Infrastructure
 Integrating sustainable design into our buildings and landscaping saves money, reduces dependence on outdated technology, and creates a more environmentally friendly campus for us all.

RAINWATER HARVESTING IN ORANGE HALL

Rain that falls on Orange Hall is collected and travels through a series of complex treatment filters to remove impurities and prevent bacterial growth before it's ready for reuse.



VOLUNTEER BOULEVARD CAMPUS BEAUTIFICATION PROJECT: PHASE 1

This project aims to improve the roadway's functionality as well as its aesthetic to better address the needs of the campus community.



Removed street parking
Street parking = drivers circling and idling while waiting for spots to open up.



Shared vehicle-bike lanes
Helped improve traffic and safety on campus for cyclists and motorists as cycling becomes a more popular mode of transportation.

Landscape improvements were made along each side of the road, curated to naturally absorb stormwater runoff in rainfall events that are one inch or less. Rather than rain flowing straight into the storm drain and right into our local waterways and rivers, the bioswales, native vegetation, and tree wells absorb the rainwater, naturally filtering out pollutants as it flows into the water table.



**Newly installed
15-foot median**



**4,000 new trees, shrubs,
and plants (native)**



Curb cuts allow rain to fall onto the road and flow into permeable areas



**60 newly installed
bioswales**

TRANSPORTATION

UTOP BIKE SHOP



Open to all students, staff, and faculty Monday–Friday, 1–6 p.m. off the TRECs loading dock on UT Drive. It also offers short- and long-term rentals on road, commuter, and mountain bikes.

RIDE THE T



UT's transit system, the T, provides students, staff, faculty, and visitors a safe, convenient, and efficient campus-wide transportation service, fare free for all passengers. The fleet features real-time GPS tracking and front-of-vehicle bicycle racks.

ZIPCAR

UT hosts two Zipcars, which students can rent for a low hourly or daily rate with gas and insurance included.

SMART TRIPS

Smart Trips is a free commuter rewards program that promotes alternatives to driving alone (like carpooling, taking the bus, bicycling, walking, and telecommuting). Participants can win prizes of up to \$100 in value each quarter.

UT RECYCLING

UT Recycling was established as a part of UT Facilities Services in 2003 and is designed for effective waste diversion operations and maximum campus participation.

COMPOST PROGRAM

Food waste is collected from all campus dining locations and select buildings and taken to UT Recycling's composting facility off Cherokee Trail. The food waste is combined with leaves and wood chips, after which it will break down and become a nutrient-rich soil additive which is used at the UT Organic Farm and around campus.

COMPOSTING TIMELINE



ZERO WASTE GAMEDAY



During zero waste gamedays, **241,385 pounds of waste were diverted from the landfill**, with an **average game diversion rate of 52 percent**.

UT competed against 79 other schools in the national **GameDay Recycling Challenge**, taking **second in the nation for recycling totals**, **fifth for highest recycling total in a single game**, and **14th in the nation for the waste diversion rate**.

The **SEC recycled the most** of any conference (**772,455 pounds**). **UT accounted for 31.25 percent of all the materials recycled in the SEC**, despite being one out of 10 participating SEC schools.



UT Recycling took zero waste gameday into Thompson-Boling Arena for the **Vols vs. Ole Miss basketball game** where they were **able to divert 78 percent of waste from the landfill**. This is the first year that UT will participate in the **GameDay Basketball Recycling Challenge**, and they hope to do more zero waste basketball games in future seasons.

PUBLIC RECYCLING DROP-OFF

Established in 2014, the UT Public Recycling Drop-Off **provides the community with a place to responsibly dispose of difficult-to-recycle items**. It accepts plastic film and bags, e-waste, scrap metal, glass, and other items that are not accepted through single-stream recycling.

2121 Stephenson Drive, Dock 24, 24/7

recycle.utk.edu/public-dropoff

Waste Reduction

Our goal is to convert UT into a zero waste institution by diverting 90 percent or more of all waste from the landfill through reduction, reuse, recycling, and composting practices.

Green Fee
Officially known
as the Student
Environmental
Initiatives Fee, the fee
provides funds for
student, faculty, and
staff ideas for projects
that contribute to a
more sustainable UT.

Have an idea?
Submit your proposal to
sustainability@utk.edu.



PROJECTS

SECOND CREEK RESEARCH STATION



A data collection project led by UT professors Jon Hathaway and Kelsey Ellis. **Water quality, flow, and weather data are being collected and analyzed from Second Creek**, effectively turning the stream into a living laboratory where we can observe the relationship between climate and our local waterways.

STUDENT DESIGN/ RESEARCH SPOTLIGHT

An industrial engineering graduate student took advantage of the **Student Design Research Fund** to lead the charge in **updating UT's HVAC units to newer technologies that use less energy, last longer**, and are **more effective in improving indoor air quality**. This project is now being continued through the Energy Task Force.



Led by faculty member **Bill Miller**, a **group of students from the Department of Mechanical, Aerospace, and Biomedical Engineering (MABE)** received funding from the Student Design Research Fund in AY 2015-16 to study the efficacy of different technologies to **help support UT's energy demand management**. The project was able to identify a viable solution and was granted additional funding to move forward into the next phase.

OTHER GREEN FUNDS ON CAMPUS

GREEN REVOLVING FUND

When an energy-saving (and therefore money-saving) project is implemented on campus, the annual monetary savings are set aside for future energy- and money-saving projects.

ENVIRONMENTAL STEWARDSHIP FUND



Created in 2005, the ESF encourages and enables faculty, staff, and other donors to help make the Knoxville campus an outstanding example of environmental leadership.

Similar to the Green Fee and stewarded by CCE, this money is used in projects and initiatives throughout campus that promote sustainability. Some examples include **purchasing green power**, investing in **hybrid and alternative-fuel vehicles**, and installing **energy-efficient heating and lighting systems** as well as **promoting energy conservation** on campus.

Looking Forward

Efforts to become a more environmentally conscious campus are never complete. We celebrate our achievements today as we look forward to doing more tomorrow.

WHAT TO EXPECT DURING FALL 2017



Climate Action Plan Update
First draft available for public comment



Application to the **Bicycle Friendly University program** in partnership with UTOP



Bredesen Center Energy Development course partnership with OOS and CCE to assess renewable energy applications on campus, in addition to energy savings projects



Sustainability Portal Development to map relationship of work across campus related to sustainability. This will be the first such matrix in the nation and will **elevate sustainability work on campus** as we **connect funding and research opportunities** between faculty and staff.



Expansion of the Student Conference Fund via the Green Fee



OFFICE OF SUSTAINABILITY

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environment.utk.edu