

Sustainability at



Washington
University in St. Louis

2010-2011 Annual Report

Washington University in St. Louis | Office of Sustainability

Table of Contents

Introduction	3
Report Overview	4
Accomplishments and Ongoing Initiatives	5
Upcoming Projects	17
Continuing Challenges	18

Introduction

In April of 2010, Washington University in St. Louis (WUSTL) released the [Strategic Plan for Environmentally Sustainable Operations](#) making a commitment to being a global leader in research on energy, environment and sustainability and a model of sustainable operations. This comprehensive plan incorporates goals in the categories of greenhouse gas emissions, buildings, transportation, natural environment, dining services and energy efficiency. The overarching direction for the University is based in our commitment to reducing greenhouse gas emissions to equal 1990 greenhouse gas emissions levels by 2020 without carbon offset purchases. A reduction to 1990 levels is a 27% reduction below 2009 levels.

The Strategic Plan set a number of ambitious goals, and through diligent work and research, the University is on track to meet them. Last summer, the Energy Reduction Committee released the [Energy Reduction Report](#) that details WUSTL's steps towards emission reductions. They include \$46.6 million in energy efficiency investments and changes in our cost analyses so that energy efficiency measures make financial sense for the university. A large-scale campus metering project, currently underway, is a component of this plan that will allow the University to discretely measure the impacts of these energy conservation initiatives.

The Strategic Plan is a strong foundation, but WUSTL plans to aim even higher. The University recently hired consulting firm Atelier Ten to reassess the current sustainable landscaping and water management practices, hoping to make the goals overall more ambitious with their recommendations. The University frequently investigates options for renewable energy implementation on-campus and is awaiting the findings of a federally-funded renewable energy feasibility study being undertaken by professors in the Department of Energy, Environmental and Chemical Engineering.

With this direction, numerous University departments have pursued a number of innovative programs over the past year. From energy conservation and consciousness initiatives to increasing waste diversion rates, these programs highlight WUSTL's commitment to sustainability on a global scale. We hope you find this report useful in measuring progress in the sustainability plan's first year. To learn more or to get involved, please visit sustain.wustl.edu or email sustainability@wustl.edu.

Report Overview

Introduction

Accomplishments and Ongoing Initiatives

1. The Green Cup
2. Energy Conservation and Infrastructure
3. Green Building
4. Sustainability Pledge
5. Campus Outreach and Accessibility
6. Student partnership
 - a. PowerShift 2011
 - b. Burning Kumquat
 - c. Student Green Council
 - d. Engineers Without Borders' Medical Equipment Recycling Program
 - e. Student Sustainability Fund
 - f. Bicycle Master Plan
 - g. Green Events Commission
 - h. Sustainable Dining Committee
7. Campus Partnerships
 - a. Edison Environmentalism & the Arts series
 - b. Campus Community Forums
 - c. Children's Sustainability Art Contest
 - d. Earth Week
8. Regional, National, and Global Outreach & Partnership
 - a. St. Louis Higher Education Sustainability Consortium
 - b. St. Louis Sustainability Forum
 - c. AASHE STARS and Sustainability Progress Reporting
 - d. Global Energy and Environmental Partnership Symposium Support
9. Recycling
 - a. Online Guide to Recycling at WUSTL
 - b. Signage
 - c. Recyclemania 2011
10. Drinking Fountain Retrofits (and bottled water ban)
11. Sustainable Move Out, 2011

Upcoming Projects

1. Sustainable Labs Initiative
2. Student Orientations

Continuing Challenges

Accomplishments and Ongoing Initiatives

1. The Green Cup

Following a proposal by senior Chris Brennan, the Office of Sustainability sponsored the inaugural Washington University Green Cup energy use reduction competition in the spring of 2011. Over the course of four weeks, South 40 residential colleges and fraternities competed in two separate leagues to reduce their energy usage below a measured baseline. Meters were installed in all of the participating buildings that identified student energy usage, which were linked to graphs of live energy usage on the Green Cup website, <http://GreenCup.wustl.edu>. Student outreach, including the kick-off event and awards ceremony, was coordinated through the Green Cup Committee, made up of students and the fellow in the Office of Sustainability. At the end of the four weeks, students had saved more than 4,000 kWh of energy, preventing the release of 3.8 tons of CO₂ and keeping 2.2 tons of coal in the ground! The competition winners were the JKL and Sigma Chi fraternity. For final standings and photos of the competition, see <http://GreenCup.wustl.edu>. The program was made possible through collaboration with the Student Sustainability Fund, Residential Life, Greek Life, the Chancellor's Office, Congress of the South 40, the Office of Facilities Planning & Management and Washington University Network Services.



2. Energy Conservation and Infrastructure

Washington University facilities departments have been working hard to ensure that the University is on track to meet its greenhouse gas emissions and energy reduction goals as set forth in the [Strategic Plan for Sustainable Operations](#). The University's energy reduction committee, established by Chancellor Wrighton, has identified more than \$45 million in energy reduction projects. Some of this academic year's projects include:

- a. **Street Lighting Retrofits:** This project included the conversion of approximately 400 existing 175-watt metal halide bulbs to low wattage 50-watt LED bulbs, affecting energy savings of 250,536 kw-hr per year (or an annual carbon reduction of 209 metric tons CO₂e per year). In addition to using less energy overall, the LED lights have a life-span of four times as long, provide "instant on" capability, and completely eliminate skyward light pollution.

- b. **Building Lighting Retrofits:** The Medical Campus has embarked on a campus-wide lighting retrofit project that includes replacing inefficient lighting fixtures and installing lighting automation. Fifty percent of the buildings have been retrofitted with more efficient light fixtures, as well as room and hall motion sensors.
- c. **Thermal Plant #6 Heat Recovery Chiller:** This project involves the application of a 150-ton water chiller as a heat pump to generate hot water for building reheat service in summer and swing seasons, in lieu of burning natural gas in boilers. Cooling generated as a byproduct of the chiller is used to unload other loop chillers, thus producing additional energy savings. This chiller will eliminate the need to burn natural gas at thermal plant #6 for heating purposes from approximately May to October of each year. Resulting annual carbon reduction is estimated at 164 metric tons of carbon dioxide equivalent (CO₂e) per year.



- d. **Power Plant Chiller Replacement:** The Danforth Campus uses a substantial amount of electricity each year for the production of chilled water for campus cooling. It is estimated that this can be reduced by 20% through a combination of efficiency improvements, including equipment replacements and operational improvements. University Utilities is currently in the midst of replacing the aged and inefficient power plant chillers with a new high-efficiency variable speed chiller. The new chiller will save approximately 183,000 kw-hr in electrical usage per year and will reduce our carbon emissions by approximately 154 metric tons of carbon dioxide equivalent (CO₂e) per year.
- e. **Power Plant Boiler Burner Retrofit:** This project includes the incorporation of new high-efficiency burners, O₂ trim control, variable speed combustion air fans, lead/lag controls and automatic surface blow down. It is anticipated that these efficiency improvements will reduce natural gas consumption by approximately 15% at the main plant, thus saving approximately 16,925 mmbtu's of natural gas per year (an annual carbon reduction of 895 metric tons of carbon dioxide equivalent (CO₂e)).
- f. **Laboratory Energy Retrofits:** The Medical Campus has wet labs of varying ages and design. Energy modeling and retro-commissioning studies are planned for all research buildings on campus. These studies are uncovering mechanical

system and operational improvements that will substantially reduce energy consumption and carbon emissions. Studies in five research buildings have been completed, revealing multiple energy conservation opportunities.



- g. **Energy Metering:** The University ultimately plans to install building metering on all buildings at both campuses. The Danforth Utilities Office is nearing completion of an energy metering pilot project that includes not only comprehensive energy usage measurement of an initial seven buildings on the campuses, but also all chilled water production and associated electrical usage. The Medical School's Facilities Engineering Department has installed building metering in four research buildings and has established a central monitoring and data collection system for the campus.

3. Green Building

With nearly two thirds of WUSTL's greenhouse gas emissions attributed to purchased electricity used to power campus buildings, sustainable design and construction is a key component in reducing the University's carbon footprint. With this in mind, WUSTL has adopted formal design guidelines and standards that align with the [U.S. Green Building Council's \(USGBC\) LEED® Green Building Rating System™](#). These University guidelines stipulate that all new construction and major renovation projects must follow the design standards and USGBC LEED requirements, [achieving standards equivalent to or exceeding a rating of LEED Silver](#). But while the University has made substantive strides using the USGBC guidelines, our campus design and construction teams continue to push the envelope, testing and demonstrating innovative sustainability ideas and practices as we aspire to do in all areas of operations and research.



- a. **LEED Certified Projects:** WUSTL has seen a notable surge in completion and certification of LEED projects in this academic year. Last September the LEED Silver-certified Family Learning Center opened at the North Campus, offering 19,000 square feet of high-quality childcare space to the University community. In addition, the Stephen F. and Camilla T. Brauer Engineering Hall and the BJC Institute of Health were both completed, receiving LEED Gold certification this past spring. The South 40 residential housing area also received certification for its most recent phase of construction under which Eliot B Hall, the second phase

of the South 40 House, and College Hall were all certified LEED Gold, bringing the WUSTL LEED project portfolio to 14 buildings and over 1.2 million square feet of certified space across the campuses.



LEED Projects as of Summer, 2011



LEED Certified	LEED Silver	LEED Gold
Earth & Planetary Sciences	Village East	Danforth University Center
Seigle Hall	Busch Hall	Genome Data Center
	South 40 House Phase I	Brauer Engineering Hall
	Umrath House	South 40 House Phase II
	Cupples II*	College Hall
		Eliot B Hall
		BJC Institute of Health
		Family Learning Center
		Preston M. Green Hall*

* Notes buildings under construction as of this report

With additional major construction and renovation projects currently underway, WUSTL looks forward to increasing this portfolio of LEED certified projects within this next academic year. For more information on these projects and others, please visit the February 2011 issue of the [Washington University Magazine online](#).

- b. **Living Building Challenge Certification:** In 2009, WUSTL completed construction on the Living Learning Center. This building, erected at WUSTL's [Tyson Research Center](#), was designed to meet the stringent energy and environmental design specifications of the [Living Building Challenge](#), authored by the International Living Building Institute. Through the use of locally sourced



materials, photovoltaic panels, rainwater collection and graywater systems the Center set out to prove that it could consume net zero energy and water. After the full year of required system monitoring, during which the Office of Sustainability worked closely with the Tyson Research Center, the [honor of certification was conferred upon the Living Learning Center](#) this past fall. Washington University now boasts one of the first projects to have met the Living Building Challenge, a testament to the University's commitment to sustainability.

4. Sustainability Pledge

Washington University kicked off its Sustainability Pledge in January, 2011. Through a series of online pledge points, the Washington University community was invited to take steps to reduce their environmental footprint. The Pledge was designed jointly between the Office of Sustainability and the Office of Public Affairs with assistance from the Department of Integrated Systems and Technology. The Pledge can be accessed at <http://SustainabilityPledge.wustl.edu>. Approximately 2,200 students, faculty, staff and community members have taken the pledge to date!



5. Campus Outreach and Accessibility

To increase the accessibility of our office's efforts toward becoming a nexus for sustainability on campus, we have begun ambitious social media and email outreach. Our [Facebook](#) and [Twitter](#) accounts are followed by 100 and 120 people, respectively. Through our [email newsletter](#), we reach more than 250 students, faculty and staff every week. Through these mediums, we inform the Washington University community on upcoming events on-campus and in the region, updates and news related to sustainability, and job postings that may be of interest to these many followers. The goal of these efforts is to act as a clearinghouse for sustainability-related happenings and to foster a campus "green" community.



Beginning in 2011, our office also gives a presentation at every new employee orientation session. At these presentations, we aim to educate new employees on the sustainability culture at the university.



6. Student Partnership

The Office of Sustainability has been actively engaged in supporting students' efforts on campus, both at the graduate and undergraduate level. From providing funds for projects to connecting students with administrators, the office aims to invest in the WUSTL student sustainability community.

- a. **Power Shift 2011:** Students traveled this spring to Power Shift 2011, the third youth climate change summit in Washington, D.C. The Office of Sustainability provided approximately \$2,500 of funds to offset the cost of traveling to the event. Students involved in previous trips to Power Shift have been responsible for much of the increased campus activity around issues related to sustainability.



- b. **Burning Kumquat:** The Office of Sustainability has developed a closer relationship with the [Burning Kumquat](#) and funded several recent additions to the student garden, including a new shed, new tables and compost bins. In addition, the Office of Sustainability has recently created three summer Burning Kumquat intern positions: a farm manager as well as two Camp Kumquat co-directors. These positions promote summer upkeep at the garden and create pathways for sustained student involvement on campus.
- c. **Student Green Council:** To help connect student sustainability leaders on campus, the Office of Sustainability convened a catered meeting at the beginning of the spring semester. At the meeting, students shared their plans for the semester and made connections with other groups on campus. The Office plans to reconvene this group once a semester, followed by a field trip or similar fun event.

- d. **Engineers Without Borders' Medical Equipment Recycling Program:** The Office of Sustainability helped students in [Engineers Without Borders/Engineering World Health](#) establish a medical equipment recycling program by connecting students with the Department of Internal Medicine at the Washington University School of Medicine.



Through this program, students plan to take unwanted or broken equipment, fix and test it, and then ship it overseas to be used in medical clinics in Africa.

- e. **Student Sustainability Fund (SSF):** The Office of Sustainability provides matching funds for the [SSF](#) to support student sustainability projects on campus. The annual contribution of \$12,000 goes toward undergraduate and graduate student projects. In the past year, these have included an after-school program to encourage healthy eating, permaculture workshops at the [Washington University Co-op](#), and startup funds for the [WU Bike Gang](#).
- f. **Bicycle Master Plan:** Working closely with the Office of Facilities Planning and Management, the Office of Sustainability has helped coordinate student input into the bicycle master planning process. The Office has assisted with data collection efforts as well, including an audit of campus shower facilities, and will continue to be an active participant as the plan evolves.
- g. **Green Events Commission (GEC):** The Office of Sustainability has helped the [GEC](#) connect with key administrators and expand the distribution of its Sustainable Events Guide.
- h. **Sustainable Dining Committee:** Students in the committee have researched the impact of disposable cup usage on campus and proposed an expansion of the reusable mug beverage discounts at campus dining facilities to address this issue.

7. Campus Partnerships

The Office of Sustainability has supported a number of programming series through working closely with others on campus.

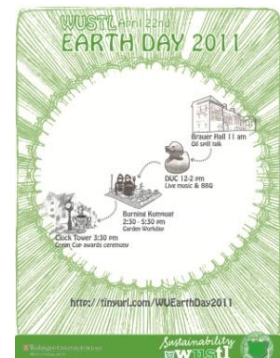
- a. **Edison Environmentalism & the Arts Series:** This April, the Office of Sustainability worked closely with the [Edison Theatre](#) to plan a number of events, including a tree climbing workshop, panel discussion and film screening, to promote discussion and exploration of the intersection of the arts and sustainability. We hope to continue this as an annual series, coordinated through an arts subcommittee of the Sustainability Awareness Committee.
- b. **Campus Community Forums:** In order to facilitate the sharing of knowledge and ideas, the University has established campus forums to engage faculty and staff from various departments on sustainability initiatives.

The *Sustainability Action Team (SAT)* at the Medical School brings together faculty, staff and students in order to share ideas and ultimately educate and inspire the campus at large. Subcommittees focusing on recruitment, purchasing, transportation, recycling, communication, energy, IT, labs, students, events, and dining services have developed their mission and goals for the upcoming year. The *Sustainability Awareness Committee (SAC)* provides the same service at the Danforth campus, galvanizing staff and faculty support for varying initiatives and gathering feedback on sustainable policies and operational procedures.

- c. **Children’s Sustainability Art Contest:** Our Campus Community Forums collaborated this past spring on the University’s first Sustainability Art Contest. Held for Washington University children attending kindergarten through high school, the event aims to raise awareness of sustainable living by engaging University faculty and staff families. The contest kit contained an outline for a family discussion on sustainability, including suggestions for topics and how to set sustainability goals as a family.



- d. **Earth Week:** The Office of Sustainability collaborated with a number of others on campus, including the Burning Kumquat, Bon Appétit and the Medical School’s Sustainability Action Team to plan a week’s worth of programming around Earth Day, April 22nd. The Office plans on sponsoring similar programs in the fall around Campus Sustainability Day in October.



8. Regional, National, and Global Outreach & Partnership

- a. **St. Louis Higher Education Sustainability Consortium:** The Office of Sustainability has increased Washington University’s participation in regional sustainability efforts through its membership in the St. Louis Higher Education Sustainability Consortium. Organized through the Earthways Center, the consortium links sustainability offices of regional higher education institutions to share ideas and support one another.
- b. **St. Louis Sustainability Forum:** The Medical School’s SAT engaged an eclectic group of businesses and institutions in the St. Louis area to share best practices, strategies, and current challenges in their sustainability efforts. The group includes Enterprise Holdings,

St. Louis University, St. Louis Community College, and Barnes Jewish Hospital, along with several other key institutions in the area.



c. **AASHE STARS and Sustainability Progress**

Reporting: In 2010, the Association for the Advancement of Sustainability in Higher Education ([AASHE](#)) released its pilot version of the Sustainability Tracking Assessment and Rating System (STARS). Developed with broad participation from the higher education community, STARS aims to provide a transparent and self-reporting framework for colleges and universities to assist in gauging relative progress in sustainable operations and research. More comprehensive and quantitative in nature than other systems, STARS looks at education and research as well as planning, administration and operations in its rating calculation.

After an extensive review of the program and discussions with the administration, WUSTL has joined 230 other schools across the nation in registering as a “charter participant” in [STARS version 1.0](#). Now involved in the process of collecting the needed information from the many constituents across the WUSTL campuses, our office looks forward to submitting the University’s formal report to AASHE later this summer.



We believe this program is an important step in permitting WUSTL to better measure progress in the area of sustainability, to foster the sharing of best practices and research, and to provide motivation for future growth in sustainability.

- d. **Global Energy and Environmental Partnership Symposium Support:** Last October, representatives from some of [the world’s leading research universities gathered at Washington University](#) to discuss ways to meet the world’s future energy needs. Since the first such gathering was organized in 2005, Washington University has made substantive strides in its operational sustainability. To assist in providing attendees and symposium delegates with a brief overview of progress, the Office of Sustainability worked with the Office of Public Affairs to develop *Washington University: A Sustainable Community*. This guide provides a brief overview of WUSTL’s progress in the areas of energy reduction, green building, dining services, and transportation and has also been helpful in communicating our accomplishments and ongoing efforts to our peer institutions and surrounding community.

9. Recycling

- a. **Online Guide to Recycling at WUSTL:** In 2010, the WUSTL campuses transitioned to single-stream recycling, a process whereby all paper, cardboard, aluminum, steel cans, glass, and plastics #1-7 can be recycled through uniform collection by a single vendor. This has vastly streamlined the recycling process for the larger majority of our campus community. Still, given the many and varied programs accommodating materials from construction and demolition waste to used cooking oil, many questions understandably arise as to what all is recycled at the University and how.



In response to these inquiries, the Office of Sustainability worked with the Office of Public Affairs, Environmental Health and Safety, WUSTL Facilities and others to develop an online guide to [Recycling at Washington University in St. Louis](#). This page on the [sustain.wustl](#) domain provides a brief overview of the varied recycling programs and initiatives on the Washington University campuses.

- b. **Signage:** Between food contamination and confusion about to-go containers, effectively communicating how new single-stream recycling rules apply in the dining facilities has been a challenge. Partnering with Bon Appétit, the Office of Sustainability helped design dining facility-specific recycling signs aimed at reducing contamination and better educating the campus community when they make the quick decision of whether to throw an item away or to recycle it. The signs have been especially effective at these locations and have been shared with local institutions so they can use them as well.
- c. **Recyclemania 2011:** In 2003, when WUSTL first began participating in the eight-week, nationwide recycling competition dubbed [RecycleMania](#), the University ranked last among eight competing schools in the competition's Per Capita category, which measures the amount of recycled goods per person.

The competition has since grown to more than 350 participants, and WUSTL has dramatically improved its standings, finishing in 2010 in approximately the top 25% of schools in the Per Capita category — No. 49 of 180 schools (2008), No. 62 of 293 schools (2009) and No. 82 of 346 schools (2010) — the past three years. The competition has also expanded to include the Gorilla Prize, among others, which measures total recycling tonnage, an area in which WUSTL has done exceedingly well (with consistent top 10% finishes), illustrating the effectiveness of our transition to single stream recycling in 2009.

This year, the Office of Sustainability took over the responsibility of facilitating the University's participation in Recyclemania from Environmental Health and Safety. In order to further improve upon the progress that the University's past infrastructure changes had allowed, the Office of Sustainability looked to increase awareness and student, faculty, and staff involvement. With the help of the Office's social media outlets, sustainability newsletter, and the assistance of Student Green Council and Sustainability Awareness Committee members, word on the competition spread quickly, helping to increase recycling awareness overall and garnering interest from Recyclemania administrators.



When this year's [final totals were released in April](#), WUSTL had [cut its 2010 rankings by half](#) in the Per Capita and Gorilla Prize categories, going from the top 24% to top 12% (42 of 363 schools) in the Per Capita category (at 25 lbs of recycled goods per person) and from the top 10% to the top 4% (15 of 363 schools) for the Gorilla Prize (with more than 550,000 lbs of recycled material).

With an overall diversion rate of 28% (as compared with 19% in 2010), WUSTL's 2011 competition results have shown an encouraging level of progress toward the waste reduction goals as set forth in the [Strategic Plan for Sustainable Operations](#).

10. Drinking Fountain Retrofits

Washington University garnered national attention in 2009 when it became the first university in the United States to ban the sale of bottled water. In order to provide a means to more easily refill reusable bottles on campus, student green groups began exploring bottle filling stations the following year. This past summer, the Office of Sustainability partnered with Washington University Facilities on a retrofit study and pilot project on the campuses. With the help of Facilities' interns and project managers, this project is now up and running and fountains in numerous buildings across the campuses have been retrofitted to provide easier access for reusable bottle users.



11. Sustainable Move Out, 2011

Every year, reusable appliances, furniture and other goods are off-loaded following the spring semester at college campuses across the country. Unfortunately many of these goods find their way to the landfill, contributing to the incredible waste numbers that large institutions produce. Thus, campus move out presents a significant opportunity to not only help protect the environment but also to support our neighboring communities through the provision of a means to easily recycle and recirculate salvageable items during this very busy time of the year.

To this end, the Office of Sustainability partnered with Residential Life, Community and Government Relations, local non-profit organizations, and student groups Tau Kappa Epsilon and Sharing with a Purpose (SWAP) to sponsor the third annual [Share Our Stuff \(S.O.S.\)](#)

program. Through the program, goods are collected at on and off campus locations for donation to various charitable organizations (including MERS Goodwill and Operation Food Search) or storage for recirculation in the fall semester.

In addition to infrastructure and process improvements to this year's sustainable move out program, the Office of Sustainability worked with Community and Government Relations, the Office of Residential Life, and other University departments and community groups to coordinate a targeted "senior week" move out event. Entitled "Lightening Your Load", this collaborative effort was held to provide a convenient donation outlet for graduating seniors and community members wishing to donate.



Upcoming Projects:

1. **Sustainable Labs Initiative:** Modeled after the very successful Green Labs program at the Medical School, the Office of Sustainability has begun an ambitious energy conservation program on the Danforth Campus. Collaborating with the Olin Business School, our Office assisted in developing a green labs-themed Olin Sustainability Case Competition which wrapped up in February of 2011, generating input and ideas for the initiative. Incorporating a number of elements presented in these cases, the Office of Sustainability is working to encourage energy conservation in Brauer Hall laboratories in partnership with the [The Department of Energy, Environmental and Chemical Engineering](#) directed by Professor Pratim Biswas. The initiative features tools for laboratory energy audits and real-time energy meters; look for more information regarding this initiative this fall.

The Medical School has also piloted a Styrofoam recycling initiative in conjunction with their established Green Labs program and laboratory recycling initiatives. Similar efforts are currently being explored for research labs cross campus and may comprise a component of the sustainable labs initiative.

2. **Student Orientation:** The Office of Sustainability is working strategically with a number of departments and student groups on campus to work a sustainability message into new student orientation programs. We'd love your help! Contact sustainability@wustl.edu to get involved.

Continuing Challenges:

Despite WUSTL's achievements since the release of the Strategic Plan for Environmentally Sustainable Operations in January of 2010, the University still faces many challenges. Some of these obstacles can be overcome through the provision of additional leadership and resources and improved communication, some are dictated by governmental policies, and others by economic issues and the limits of technology. As the University tackles its goals and strives to meet its aspirations, a keen awareness and appreciation of these challenges is essential in planning for future development. The following represents an overview of some of these challenges.

Energy Reduction and Campus Growth: Since 1990, the University has grown from 5.7 million square feet of space to more than 10.6 million, an 87% increase. As a leading research institution, meeting our core academic mission requires that much of our ever-expanding square footage be dedicated to laboratories, which are inherently more energy-intensive than office or classroom space. And although WUSTL has made impressive strides in energy reduction during this period of growth as well ([having reduced energy utilization on a square foot basis by 31.3% on the Danforth Campus and 51.0% on the Medical Campus](#)), the expansion of the campuses has led to a total increase in energy use of more than 10% and greenhouse gas emissions of more than 27% since 1990.

WUSTL's success as an institution and the accompanying need for physical growth presents a looming obstacle as the University strives to reduce greenhouse gas emissions and overall energy use. And despite the impressive planning of the Energy Reduction Committee, the exemplary work of our Facilities departments, and developing programs for operationally sustainable labs, the need for expansion will continue to present a challenge as Washington University moves forward.

Academic and Operational Planning and Collaboration: From WUSTL's [Department of Energy, Environmental, and Chemical Engineering](#) to the [I-CARES](#) program, Washington University has proven to be a leader in environmental research and sustainability. The University is fortunate to have the benefit of leading academic minds on the campuses performing cutting-edge research in many areas surrounding energy and environment and a passionate administration deeply committed to environmental stewardship. Thus, the University has a large pool of resources with which to work in meeting its goals for sustainability. However, as a large research institution with multiple campuses, clear communication and working partnerships often prove challenging. And though past large-scale collaborative efforts have proven successful, we know there is much more we can do to bring WUSTL's many departments together in working to meet University-wide goals.

By improving the integration of WUSTL's academic research and operational resources, the University will be better equipped to achieve its goals and realize its aspirations. To this end, the Office of Sustainability is exploring the formation of a cross-campus advisory group that will bring our many leaders together in guiding Washington University's path to becoming a global leader in research on energy, environment and sustainability and a model of sustainable operations.

Departmental Leadership and Resources: The Office of Sustainability is only a few years old and has been undergoing the delicate process of finding its place in the overall University infrastructure. To continue and expand upon our sustainability efforts, the Administration is currently performing a nation-wide search for a candidate with the appropriate mix of experience, education, and leadership skills needed to lead the Office of Sustainability and guide Washington University in meeting its goals for sustainability.

Community Awareness, Engagement, and Behavioral Change: In order to affect large-scale transformation toward sustainability, not only is operational and academic departmental collaboration required, but community engagement and cooperation is needed as well. Clear communication of WUSTL's efforts as an institution and a larger appreciation of the regional and economic challenges that the University faces are needed in order to overcome the skepticism progress is sometimes greeted with. With such understanding, WUSTL will be better able to bring the campus and community together to facilitate the sharing of ideas and further progress toward its institutional goals. And without such clear communication and collaboration, the behavioral change needed in energy and water conservation, recycling, and other areas will never be fully realized. Staff and student orientation initiatives, social media, and outreach efforts have contributed much on the communication front, but awareness and behavioral change will continue to be a challenge as the University community moves forward and our growing population sees transitions from year to year.