University of Richmond
Climate Action Plan
January 2012 Update

Executive Summary

In accordance with the responsibilities accepted as signatories to the American College and University Presidents' Climate Commitment, the University of Richmond submits an update to the Climate Action Plan biannually. The 2012 update highlights accomplishments in sustainability achieved over the last year and outlines the University's priorities for the next two years.

Accomplishments achieved since the completion of the Climate Action Plan in December 2010 range from programmatic developments such as the Green Office Program to long-term commitments such as prioritization of sustainability in the Campus Master Plan. The campus energy audit results provide a road map to improve efficiency in campus infrastructure energy use and participation in national energy reduction and recycling competitions raises awareness and encourages individual participation. The development of a sustainability themed wellness class is an important step forward in offering sustainability courses to all students.

Over the next two years, efforts will focus on creating a culture of sustainability on campus by spreading awareness, advocating policy changes, implementing energy conservation and efficiency projects, and integrating sustainability into educational experiences on campus. The administration will focus on offering events focused on sustainability and incorporating sustainable practices into large campus events, including commencement. Additionally, policies focused on resource use on campus will help guide the campus community into sustainable practices. The energy audit identified many potential large-scale efficiency projects on campus and the pilot solar panels will provide important data on the use of renewable energy on campus.

Over the last year, the University's transportation plan was implemented; within the next year a follow-up to the original transportation survey will be conducted to gather data that will allow us to quantify the emissions reductions resulting from the efforts and to uncover additional opportunities for improvement. The Master Plan emphasizes the University goal of creating a bike-friendly and walkable campus. All of these efforts combine to help reduce the number of single-occupancy vehicles on campus.

The 2011 fiscal year saw a 12% decrease from 2010 levels in landfilled waste generated on campus. Future campaigns will continue to increase awareness of recycling, composting, and consumerism through increased signage, events, and infrastructure changes.

A LEED internship program is offered each semester and provides an opportunity for students to become active participants in the LEED application process for University of Richmond buildings. The program provides students with real world experience in the green building field. In Spring 2012, the first sustainability themed wellness class will be offered on campus, offering all students the opportunity to investigate their personal environmental footprint. A new student group on campus focused on green buildings also provides new opportunities for student involvement in sustainability. Over the next semester, a workshop will be developed to help faculty in any discipline incorporate sustainability into a course. Sustainability education will also be expanded through orientation programs and new peer-to-peer opportunities.

In the year since the completion of the Climate Action Plan, the University of Richmond has experienced many great successes and is poised to achieve many objectives over the next years.

Table of Contents

Table of Figures

Administration

Background

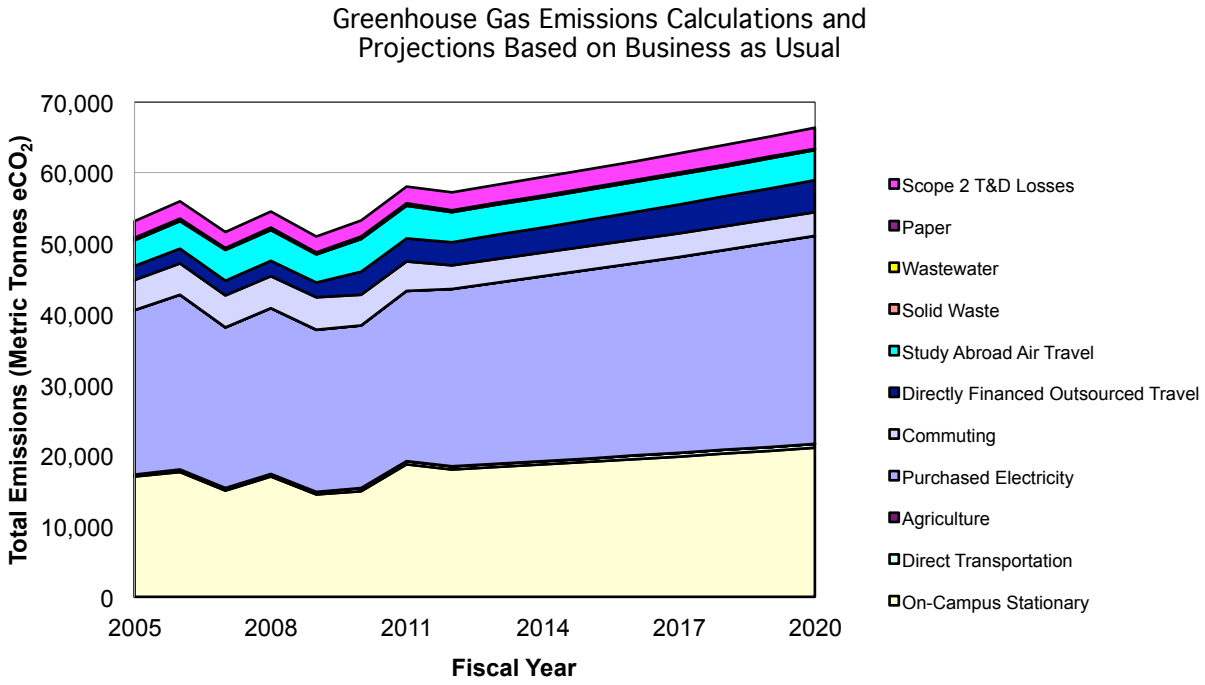
Support from the University administration continues to play a crucial role in the accomplishment of the goals set forth in the Climate Action Plan and subsequent updates. The support of the University administration focuses the rest of the campus community on the mission to reach climate neutrality. Many initiatives that have a positive impact on other sections of the climate action plan, but require collaboration between various campus offices are listed here.

Recent Accomplishments

Carbon Footprint Calculations

The University has calculated its carbon footprint for fiscal years 2005 – 2011. While some of the data related to scope 3 emissions (everything that is unrelated to on-campus stationary, direct transportation, agriculture, or purchased electricity) has relied on assumptions and educated estimations, each year the data entered becomes increasingly accurate. Efforts are underway to continue to improve the quality of the data collected. Projections past 2011 are based on business as usual. The shape of the graph is largely driven by the University's on-site steam plant. In years with fewer degree-days and more gas use, the emissions are lower than in years with high demand and more coal use. The 9% increase in emissions for FY2011 can be largely attributed to a combination of more than a 30% increase in cooling degree-days, the addition of three new buildings (representing a 6% increase in square footage) on campus, and an increased load in the data center. The University's energy use per square foot has remained relatively stable and is shown in Figure 2.

The emissions reductions anticipated from the energy audit and other efficiency initiatives over the next years are depicted in Figure 3. Each wedge in the graph represents the GHG reduction created by one project. While large projects, such as the coal to gas fuel switch, have a large impact, the majority of projects have a smaller impact. Each small wedge plays a critical role in achieving climate neutrality.



*Calculated through FY2011

Figure 1: Greenhouse Gas Emissions Calculations and Business as Usual Projections

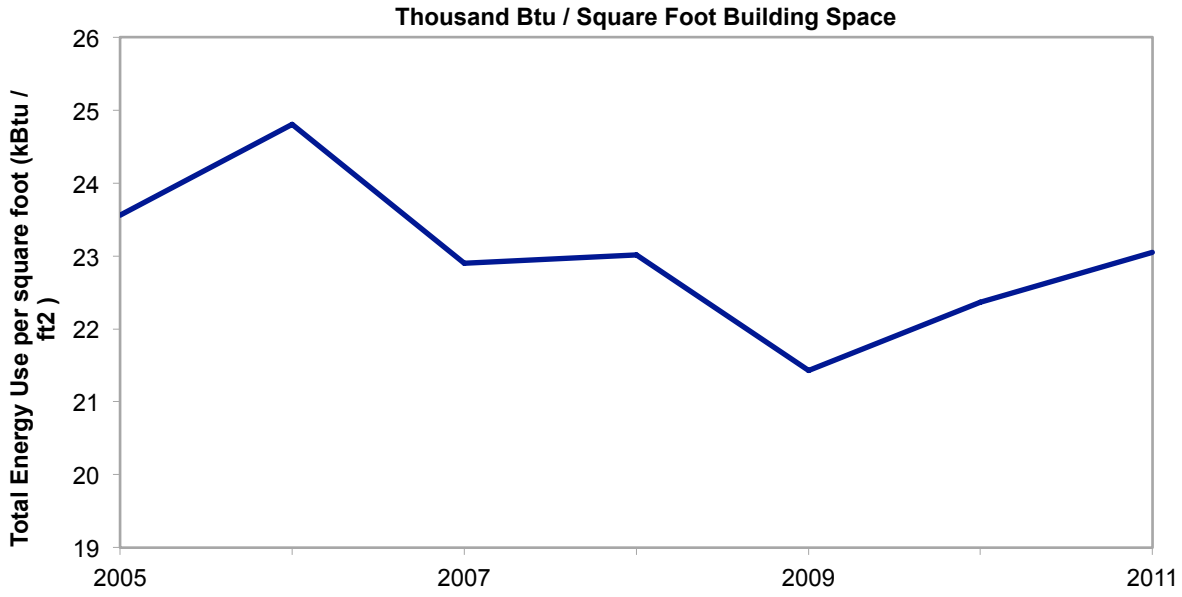


Figure 2: Energy Use Per Square Foot, 2005-2011

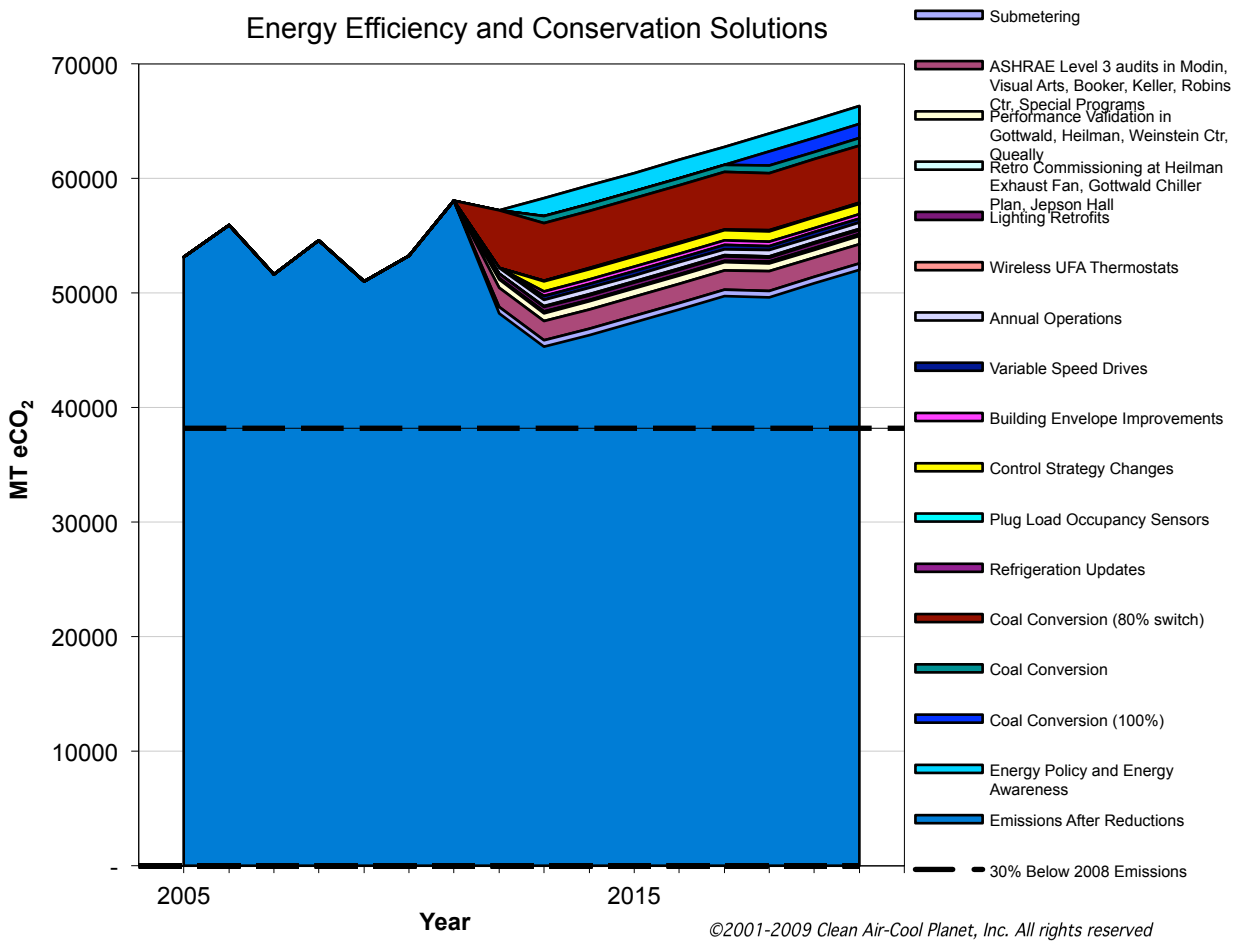


Figure 3: Anticipated GHG Reductions from Energy Conservation Measures Identified in the Energy Audit

Programmatic Accomplishments

Over the last year the sustainability office has successfully implemented several initiatives to raise climate awareness on campus and encourage behavior change. The 'UR Sustainable' pledge is available online for all community members. The pledge encourages users to undertake specific changes in their daily lives that will have a positive environmental impact. The public pledge not only makes it more likely that individuals will fulfill their commitment but it also serves to educate users about actions that will have a positive environmental impact.

The Green Office Program roll out occurred over June and July 2011. As a joint effort between the University Staff Advisory Council (USAC) and the sustainability office, the program provides concrete action items for office staff to take that will help the University achieve climate neutrality. The program aims to create a culture of sustainability in offices on campus and to create community around the subject of sustainability within and across University offices. In the first few months of the program, ten offices have already earned recognition by completing at least one of the three checklists.

The sustainability office has established, with the assistance of the communications office, an online presence in the form of a website and through social media sites, Twitter and Facebook. The website serves to provide key sustainability information to the community including details on initiatives across campus, sustainability groups, green buildings, as well as links to many other resources.

The University has now hosted two green football games, and a third is scheduled for next fall. The games provide an opportunity to showcase sustainability efforts on campus. This year student volunteers provided recycling bags to tailgaters and helped ensure that stadium visitors used recycling bins. The green game coincided with this year's Environmental Awareness Week and marked the start of 'Dorm Wars,' an energy reduction competition in the residence halls that utilizes the University's dashboard energy monitoring system.

When the University first joined the ACUPCC, Dr. Ayers stated that it was the responsibility of individuals to help reach climate neutrality. Including this call to participate in annual update messages helps to reenergize and educate the campus community. Dr. Ayers reaffirmed the message when he met the most recent freshman class and spoke to them about their ability to personally contribute to the University's sustainability goals. The message was also reiterated during the president's annual update for staff members.

Next Steps

Policies

Energy

The Energy Use Policy (Appendix 1) focuses on reduced energy consumption on campus. This policy sets temperature set points for summer and winter, 74 to 78 degrees and 66 to 70 degrees, respectively. These set point ranges are in line with Dominion's recommendations of 78 in summer and 68 in winter. The University will consider informing building occupants across campus of excess heating and cooling loads and encouraged to take steps to decrease energy consumption on those days. This practice is already used on exceptionally hot days in efforts to decrease electricity consumption. Expanding this practice will expand awareness and decrease the energy demand on degree-days. In addition to these set points, there will be nighttime and weekend setbacks in unoccupied buildings. This policy also expects occupants to turn off lights when leaving a room and close windows and doors when the space is being heated or cooled. Lastly, this policy prohibits the use of personal space heaters unless they have been received from University Facilities. Before issuing a space heater, Facilities will evaluate the problem and work to resolve it.

Vehicles

The Vehicle Maintenance, Operating, and Purchasing Policy (Appendix 2) addresses a broad spectrum of issues dealing with University vehicles. This policy requires all

University owned vehicles to be regularly inspected to make sure that optimal fuel efficiency is achieved and that emissions are as low as possible. The policy also includes a no idling clause, which prohibits drivers from idling. There is also an expectation that drivers will avoid hard accelerating and stopping when possible. This policy also asserts that Procurement Office will make all efforts to find a hybrid or alternative fuel vehicle when purchasing a new vehicle for the University fleet. The University will also work to reduce the size of the campus fleet.

Culture of Sustainability

Creating a culture of sustainability on campus is central to creating a successful behavior change program. The Green Office Program provides incentives and tools for offices to reduce their environmental footprint. Expanding these efforts to the rest of the campus requires additional educational programs, trainings, and tools. These programs will include further integrating sustainability into daily life on campus through the branding and marketing of the sustainability efforts on campus. Orientation programs for faculty, staff, and students will be developed to provide individuals with sustainability information and expectations on day one. Additionally, formal sustainability trainings will be developed to provide employees with the proper information and tools needed to achieve their sustainability goals. Often it is difficult for individuals learning about sustainability to separate green-washing from true information and these training programs will reduce the burden on individuals to sort through the available information. A program will be developed for residence hall sustainability champions; these 'Eco-advisers' will provide a link between the sustainability office and the residence halls, ensuring that all students have the information necessary to be environmental stewards.

Building off of the success of inter-departmental collaborative efforts, the sustainability office will reach out to offices, including the Chaplaincy and Common Ground, to provide educational programs on environmental justice.

Events

Large events on campus provide an opportunity to showcase University priorities. As such, commencement and orientation related events are being reconsidered and redesigned to incorporate sustainable practices. Rethinking printing, waste management, menus, decorations, and handouts provides an opportunity for the University to demonstrate environmentally preferred practices. The 2012 commencement exercises will pilot several of these initiatives, including reduced printing and recyclable gowns made from recycled plastic.

Printing

The University has identified campus printing as a sustainability priority. The printing efforts fall into two categories. The first is the 'Opt Out of Paper' program, which will provide individuals on campus with the option of choosing to receive only electronic communication about University programs and events. This effort also includes working with the offices that provide print material to reevaluate print needs. The second part of the printing efforts includes office printing. This incorporates ensuring that offices are aware of how to utilize the available functionality of the devices they use (i.e. how to

double side print), and improving the functionality of devices. This effort also includes evaluating campus printing as it is and subsequently removing extraneous printers.

Measurement and Verification

The University will use STARS (Sustainability Tracking, Assessment, and Reporting System) as a tool for monitoring progress toward climate neutrality. The STARS program will also be used to prioritize future efforts and to organize information for sustainability related surveys. The University will continue to consider the benefits of joining other challenges and organizations related to sustainability when relevant and appropriate.

Additionally, the University will continue to rely on an annual emissions inventory to measure overall progress. As this process continues, methods to improve data collection will be established. In order to continue to improve the quality of data used in calculating the University's carbon footprint, the sustainability coordinator will work with accounts payable to determine the best method to capture the necessary travel data.

Infrastructure Energy Use

Background

Energy use on campus, both purchased and on-site generated, contributes the vast majority of the emissions for which the University is responsible. Reduction of energy demand, through both energy efficiency and conservation efforts, is undoubtedly a necessary part of reaching the University's interim emissions reduction goal before 2020.

Energy use on campus has risen with the addition of new buildings and the improvements to infrastructure. The University is committed to meeting the needs of the University community, but must do so in an environmentally responsible manner. The 2011 Master Plan reflects this requirement with the inclusion of sustainability as a guiding principle.

Recent Accomplishments

Conservation

Reducing energy consumption through behavior change is an essential part of reducing the University's carbon footprint. To facilitate behavior change, educational programs and competitions have been introduced to campus to provide action items, tools, and educational materials to participants. Staff and faculty have engaged in the Green Office Program, which provides checklists with action items related to energy consumption. These items include computer energy settings, turning off lights and office equipment when not in use, and reducing the overall plug load through the removal of extraneous office equipment. Students have engaged in once-a-semester energy reduction competitions in the residence halls through the use of the Lucid dashboard system. In the fall the residence halls participate in Dorm Wars, an internal energy competition, and in the spring residence halls participate in Campus Conservation Nationals, a national college residence hall energy reduction competition. Additionally, information about conservation is available through the UR Sustainable Pledge, the sustainability website, social media pages, the sustainability bulletin board, as well as direct outreach, including talks, tabling, and student group led public programs. Empowering individuals to realize the value of their impact simply by reducing their individual plug load will help achieve energy reduction results.

Fuel Switch

The University's steam plant has historically run primarily on coal, however beginning in FY2012, the primary fuel has switched to natural gas. This switch will have an immediate and noticeable impact on our greenhouse gas emissions. The steam plant has four boilers, two of which are tri-fuel boilers and can run on coal, natural gas, or oil. The other two boilers can only run on coal and for the immediate future will be needed during peak

demand days over the winter. The University is evaluating options for investment in renewable technologies and a full retrofit of the steam plant, to permanently eliminate coal within the next five years. This target date is advanced from the original Climate Action Plan goal of 2030.

Renewable Energy

The University's first on-site renewable energy system was installed in the fall of 2011. The system includes a 10 kW photovoltaic array and solar thermal panels and is located in the 1800 block of University Forest Apartments. The apartments and solar energy systems have been added to the University's energy dashboard, enabling the entire community to view in real time the amount of energy being generated. This pilot program will serve both to reduce our reliance on fossil fuels and to provide educational opportunities through on-campus field trips and online materials. Data gathered from this project will enable us to determine the best method for bringing larger scale renewable energy systems to campus.

Energy Policy

The energy policy (Appendix 1) will address several efficiency and conservation issues. Having specific temperature guidelines allows the University to maintain cooler temperatures in the winter and warmer temperatures in the summer. Individuals may need to adjust their wardrobes accordingly. Additionally, under the policy, space heaters will no longer be allowed. Individual heaters are less efficient than building systems, create a fire hazard, and can mask serious building problems. Individuals who feel they need a heater must contact facilities for an evaluation of their space. Through the evaluation, temperatures will be monitored continuously over several days and facilities will work to alleviate any problems.

Efficiency

Buildings

The new E. Claiborne Robins Stadium recently became the University's fourth LEED® certified building, earning Silver certification. The University expects to build three new buildings over the next two years, all of which will be built to at least LEED Silver standards. In addition, there are several buildings on campus that are registered and awaiting LEED certification. While adding new construction increases the amount of work to be done to achieve climate neutrality, a focus from the design phase of the construction project through occupancy on sustainability, makes the goal achievable for each building.

Energy Audit

In the spring of 2011, the University engaged Eneractive Solutions in a campus-wide energy audit. The findings of the audit provided a list of 90 potential energy conservation measures to invest in on campus. The University evaluated the findings and developed a three-phase plan to reduce energy consumption on campus. Phase one of the energy

conservation measures will be implemented during FY2012. Identified projects range in scale and combine to create a comprehensive energy conservation strategy for the campus.

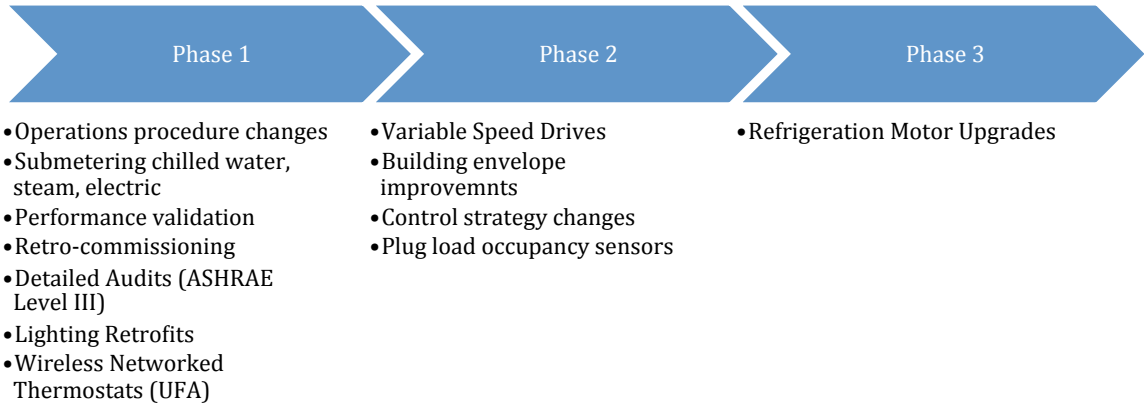


Figure 4: Phases 1, 2, & 3 for the energy audit implementation

Next Steps

Implementing Energy Audit Findings

The first phase of the energy audit is being implemented beginning in FY2012, with the subsequent two phases scheduled for FY2013 and FY2014. Phase one will be accompanied by the start of a focused effort on energy awareness. Beginning with the 2012 Campus Conservation Nationals, a partnership between residence life, sustainability, facilities, and student groups will work to ensure that the campus is empowered to create change. These efforts will include trainings, information sessions, marketing materials, expanded outreach, and celebrations to recognize our achievements.

Revolving Fund

Savings from the implementation of energy conservation measures will be captured through the use of a revolving fund (a detailed description can be found in Appendix 3). The fund will be used as a tool to allow for the reinvestment of savings from efficiency and conservation in energy conservation measures or in renewable energy sources. Potential revolving fund projects will be evaluated by individuals representing the Sustainability Working Group and Finance office based on payback and environmental impacts and will further the University's sustainability efforts.

Renewable Energy

The University will investigate the financial feasibility of installing solar thermal and other photovoltaic technologies on campus. The newly installed pilot solar project will provide data for use in determining the cost effectiveness of such projects. Additionally, the option of a power purchase agreement (PPA) will be investigated. In addition to solar possibilities, the University will continue to obtain data from an anemometer located atop Robins

Stadium to determine if wind might become an appropriate option. Geothermal technologies will be investigated for heating and cooling options, and other new technologies will continue to be evaluated.

New Construction and Renovations

New construction and renovations that increase the energy consumption of a building through the installation of building features, such as elevators, create barriers to the overall reduction in campus energy usage. With this problem in mind, the energy section of LEED will be a focus for all new construction. Additionally, LEED for existing buildings and interior design should be considered for renovations not eligible for LEED for new construction, these tools will allow for the recognition of all construction projects that help meet the University's goals. In order to improve occupant understanding of LEED, a website for each LEED building will be created to provide facts about the building and provide user information so that occupants are aware of how the new building systems work and how the various building features impact their daily lives.

Measurement and Verification

The University tracks emissions through the annual greenhouse gas emissions inventory calculation. This process provides useful data on overall progress, but does not provide data on a building level or smaller scale, this type of data can be useful in determining the cause of an energy use increase or the effectiveness of an efficiency project. Additionally, even if localized energy efficiency projects are successful, it is difficult to determine the level of impact when new buildings and renovation projects are also included in the GHG emissions calculation. The residence halls on campus all have building level electricity consumption meters; the data from those meters is available publicly through the building dashboard system. Installing meters to track chilled water, electricity, and steam in all campus buildings will greatly improve the University's ability to evaluate and expand efficiency projects.

Transportation

Background

In 2010, the University conducted a comprehensive transportation study to evaluate and provide recommendations for University transportation needs related to community connectivity. Recommendations included campus shuttle services, public transportation connections, shared vehicles, and carpooling. Additionally, the 2011 Campus Master Plan includes a parking plan, campus way finding, and bicycle and pedestrian infrastructure.

A survey conducted in association with the transportation study supplied data used to calculate emissions related to commuting, prior to the survey, national averages were used in the estimations. During the 2010 emissions inventory, study abroad travel and directly financed travel included travel for University business and athletics, were calculated with as much accuracy as possible going back to 2005. Data was obtained through the University's reimbursement system and from departments that use a travel card. Athletics and the study abroad office both provided detailed information about travel. Due to the dispersion of the historical travel data around the University, it is, at best, cumbersome to obtain accurate travel data for years prior to 2010. Establishing a means of accurately calculating travel financed by the University will be a priority over the next year.

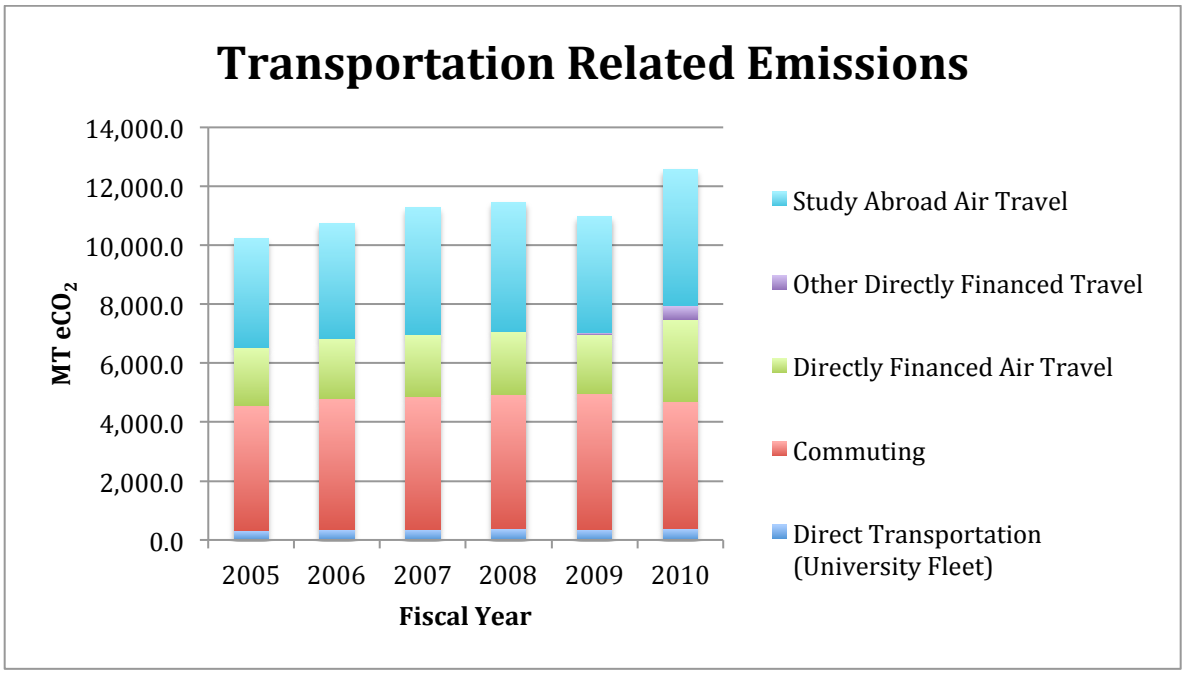


Figure 5: Transportation Related Emissions

Recent Advancement

Prior the implementation of the University's transportation plan, the University had achieved an 'A' in the Transportation category in the 2010 and 2011 Sustainability

Endowments Report Card. This accomplishment reflected the many transportation projects already in place at the University including free GRTC bus passes to all employees and students for commuting and shuttle services between campus and the surrounding areas. The comprehensive transportation study revealed that there were several ways in which the University could expand these programs and improve transportation and the University's connectivity with the surrounding communities.

Shuttles

The University worked with GRTC to add two additional stops on campus for route 16, the bus that directly connects campus to downtown. The route 16 bus only runs during certain hours and in order to keep the University connected with public transit throughout the day, the University continues to operate a GRTC Connector which connects riders with one of the larger bus stops in the city. The 2BNB (To the Bottom and Back Bus) runs on weekends and connects students with recreational activities downtown. Other shuttles include UR Downtown, which connects the main campus with the UR Downtown location, the Spider Mall Crawl, which connects riders with several nearby shopping centers, and the Campus Loop, which runs every evening throughout campus. To better provide faculty, staff, and students with information about the transportation system and with the buses, a transportation hub has been created in the commons near the main bus stop. The shuttles all use GPS tracking which can be viewed on a computer or at the transportation hub. For fall of 2011, the shuttles were converted from gas to propane fuel.

Bicycles

The Green Bike program continues to be a success on campus and has grown from 35 bikes to 50 bikes available for use throughout campus. Strategies for reducing vandalism within the program are regularly evaluated. The addition of bike racks at existing and new buildings around campus continues.

Carpooling, Car Sharing, and Hybrids

Faculty, staff, and students all have access to Zimride, a program used to connect drivers and passengers and expand carpooling. The University has two Zipcars on site and has parking spots reserved for those cars near the transportation hub.

Drivers of hybrid cars on campus are eligible for preferred parking and many LEED buildings on campus have specially designated spaces for hybrids. This preferred parking is available for stadium occupants on game days. In addition, the Weinstein Hall parking lot has two electric vehicle charging stations. Carpool participants also receive preferred parking on campus.

The first hybrid car was added to the campus vehicle fleet in late spring 2010. Hybrids and other alternative fuel vehicles will be prioritized for all future vehicle purchases.

Next Steps

The University recently created a new Master Plan for the campus, which states that pedestrians and bicyclists will be prioritized on circulation routes through campus. Relocating and minimizing cars in high pedestrian traffic areas will accomplish this goal. Parking areas will be shifted away from the center of campus to one or two parking desks on the peripheral. Pedestrian crossings will be designed to give pedestrians priority in high traffic areas of campus. Bicyclists will be accommodated on all campus streets in the plan and on a bike path through a new campus greenway. This greenway will run along a stream on campus and will connect with a developing city-wide bike path, thus connecting students with the downtown areas of Richmond as well as with the Pony Pastures James River Park located across the James River from campus. This connection to the river is important for University research needs as well as for recreational activities. The city of Richmond is in the process of finalizing its own sustainability plan (RVA Green), part of this plan focuses on prioritizing bicyclist and pedestrian accessibility throughout the city. The University will reevaluate transportation and related infrastructure as the RVA Green plan is finished to ensure alignment with the city's goals.

The majority of University employees rely on cars for their commutes. A relatively small percentage of employees live near bus or shuttle routes and have work schedules that are compatible with the bus schedules. Zimride allows University faculty, staff, and students to locate potential carpool buddies. The transportation office will use Facebook, give-a-ways, demonstration days, etc. to educate about and offer incentives for the use of the programs. "Think Outside the Car" brochures were distributed to all students in Fall 2011 to ensure that everyone is aware of the transportation options on campus. The sustainability and transportation offices also provided information to resident advisors this year for use on their floors.

The University recognizes the need to provide transportation to airports and train stations for faculty, staff, and students. This need is increased near holidays. The University currently provides discounted transportation shuttle service to University community members and is investigating additional options for providing access to regional airports such as Washington Reagan, Dulles, and BWI.

To reduce the impact on the University's footprint from commuting, the University Staff Advisory Council and Human Resources are investigating alternative work schedules and a work from home option for employees.

Vehicle Policies

Vehicle maintenance, operating, and procurement policies will help to reduce the environmental impact of the campus fleet. The goals are:

- Provide vehicle operators with guidelines that will maximize fuel efficiency
- Maintain vehicles for optimal operation
- Prioritize the purchase of hybrids or alternative fuel vehicles

- Reduce the fleet size

These policies will be reviewed and submitted for approval during FY2012.

Measurement and Verification

University funded travel is difficult to track at UR. The University will work toward establishing a streamlined system of capturing travel from all schools and departments over the next two years.

The University fleet includes facilities vehicles, police fleet, shuttles used for student activities and field trip travel, and carts used by facilities and dining services. As efforts begin to reduce the overall fleet size and replace traditional fuel vehicles with hybrids, alternative fuel vehicles, and electric vehicles, the fuel use will be closely monitored to ensure that the University is shifting away from the upward trajectory of fuel consumption for the fleet. The increase in fuel use for FY2011 can be partially explained by the expansion of the University shuttle services. This addition eliminates the fuel burned by individuals within the campus community, although that reduction is not captures here.

Fiscal Year	Gallons Unleaded Fuel
2006	36,414
2007	38,948
2008	40,138
2009	41,536
2010	43,748
2011	48,067

Figure 6: Campus Fleet Fuel Usage

A campus-wide travel survey was conducted in 2010 as part of the University transportation study. In spring 2012, a follow-up commuter survey will be conducted to capture behavior changes already recognized and to uncover additional opportunities.

Materials Management

Background

A focus on waste reduction and recycling in any sustainability program provides a method for individuals across campus, regardless of their role, to actively participate in sustainability every day by making sustainable purchasing and disposal decisions. The University has successfully reduced its landfilled waste since 2005. Continued focus on recycling and waste reduction is needed to meet our zero waste goals.

Fiscal Year	Landfilled Waste (pounds)
2005	1,451
2006	1,338
2007	1,340
2008	1,337
2009	1,216
2010	1,338
2011	1,188

Figure 7: Annual Landfilled Waste

Recent Accomplishments

Recycling Awareness and Access

During FY2011, new recycling labels were deployed on campus to improve the consistency and clarity of labeling across campus. In conjunction with the new labels, the Sustainability office worked with Communications, Facilities, the University Staff Advisory Council, and GreenUR to better educate individuals across campus about the recycling guidelines for campus. These educational efforts included tabling, distribution of flyers, personal contact during sticker replacement, SpiderBytes, email announcements, and web content improvement. As part of this effort, recycling bins were reorganized across campus to locate trash, paper, and containers bins near one another when possible to reduce contamination. Maintenance of this work across campus requires continued effort and collaboration between facilities, sustainability, and offices across campus.

RecycleMania

The University has participated in RecycleMania since 2008. From 2010 to 2011 the University's cumulative recycling rate improved from 16.59% to 20.37%. In 2011, the University ranked first in bottles and cans recycling in Virginia and second in cardboard recycling in Virginia. UR participated in the food services organics portion of the competition for the first time in 2011. Unfortunately, the University placed last in Virginia in the Waste Minimization category, with 80.38 pounds of waste per person, compared to the second-to-last placed Virginia school with 59.57 lbs/person. The national average is 48.92 lbs/person and the national median was 40.81 lbs./person. While the fact that the University of Richmond is largely a residential campus helps to explain such large numbers,

there is significant room for improvement in this category. As such, many of the University materials management initiatives will focus on waste reduction over the next two years.

Electronic Waste

During RecycleMania, Information Services, the President's Office, and Sustainability held an e-waste collection drive for personally owned electronics. The University uses Redemtech to handle Information Services' e-waste and the company hauled away 6,024 pounds of employee- and student-owned electronics.

During 2010, Information Services, through Redemtech, recycled or reused 32,920 pounds of electronic waste. This effort prevented 150 tons of CO_2 from entering the atmosphere and prevented numerous toxic components from leaching into soil or ground water. Over the next year, efforts will be made to ensure that electronics not procured through Information Services are also disposed of properly.

Compost

The University successfully piloted a compost program in Heilman Dining Center during the 2010-11 school year. The University works with a local penitentiary to compost kitchen food waste. In addition to this program, GreenUR continues to run the on-site composting system for students and other interested community members.

Consumption

The Green Office Program addresses recycling education and purchasing standards for offices. The Procurement office provides information on environmentally preferred vendors on their website. The Office Supply Exchange allows offices to drop off surplus office supplies in exchange for free supplies. During the first six months of the program, more than 30 offices participated and the departments have collectively recognized several thousand dollars in savings. In response to student requests, the University provided reusable shopping bags for all students for 2011-12. This effort is to reduce the reliance on plastic bags on campus. Total waste reduced—including landfilled waste, compost, and recycling—is used to measure the success of consumption reduction efforts. Additionally, the Lug-a-Mug was redesigned for the 2011-12 school year. The new mug is thinner and will fit in water bottle holders on backpacks, making the mugs easier to carry around.

Next Steps

Accessibility and Ease

Over the next year, feedback will be sought regarding the accessibility of recycling at the University. Sustainability and Facilities personnel will work together to establish a plan for recycle bin selection and placement, with a focus on creating a one-to-one ratio of recycling to trash bins on campus. A pilot program for improved recycling at the apartments and

fraternities began in fall 2011. This program is expected to expand to all fraternities, apartments, and recycling stations throughout campus. The goal of the new system, which will include covered rolling bins, is to reduce contamination, improve capacity and accessibility, and to improve tipping ease of the system for the custodial staff.

Goals

In 2011, Central Virginia Waste Management Authority (CVWMA) reported a recycling rate of 53.6% for the region (the state minimum is 25%). To work toward meeting the regional average and to improve our RecycleMania results over the next two years we will:

- Host a large, public waste audit in the fall during Environmental Awareness Week and early in the spring during RecycleMania. This event will educate the community on recycling options and remind people to think twice before consuming single-use and non-recyclable products.
    - In addition to the educational benefits of the waste audit, valuable data is gathered. The prior two waste audits revealed the following:
        - Sarah Brunet Hall – March 2011
            - 26% recycling rate achieved (36% maximum)
            - 20% of trash could have been recycled
        - Jepson Hall – September 2011
            - 21% recycling rate achieved (44% maximum)
            - 29% of trash could have been recycled
- Provide structured outreach, such as an Ask Me About Recycling campaign, through residence hall, office, and custodial champions.
- Reduce waste streams by continuing to review purchasing policies and preferred vendors. The Green Office Program advises offices to bundle orders to reduce packaging material. Reduction of single-use non-recyclable products will be a priority.
- Investigate and pilot alternatives to paper towels in bathrooms. The University uses approximately 45,000 pounds of paper towels annually, none of which are recyclable and all of which end up in the landfill.
- Improve composting on campus by expanding back of the house composting to all campus kitchens in addition to the composting in the dining hall. Work with student groups to expand compost education across campus to ensure that employees and students can participate without contaminating the compost stream.
- Pilot water bottle refill stations and water fountains in high traffic areas to remove barriers to accessing tap water easily around campus.
- Expand on the Green Game tailgating recycling efforts from 2011 to create green tailgating tools and work to reduce recycling contamination at the stadium through improved bin selection and occupant education efforts.
- Ensure that all University e-waste is recycled.
- Revisit creating a tray-less dining hall.
- Beginning with move-in during fall 2012, students will participate in Don't Be Trashy, a student-led waste reduction effort held during move-in. Using this program, the University will reach out to all students prior to their arrival to

provide environmentally responsible packing ideas. In addition, students will help with recycling efforts during move-in.

Measurement and Verification

Facilities will continue to track the University's waste stream and determine the landfill avoidance rate. Additionally, the University will continue to participate in RecycleMania, which requires weekly waste measurement for a sustained period. Members of the University community are encouraged to contact the sustainability office with questions and requests for additional bins.

Education

Background

In addition to the commitment to track and create a plan to reduce GHG emissions, through the ACUPCC, the University is also committed to take "actions to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students [and to take] actions to expand research or other efforts necessary to achieve climate neutrality" (ACUPCC). The University has offered an Environmental Studies major and related minor which includes a variety of multi- and cross-disciplinary courses. The School of Professional and Continuing Studies, Business School, and Law School all offer post-baccalaureate opportunities for students interested in the environment. These opportunities include several sustainability related certificates through the School of Professional and Continuing Studies. The Robert R. Merhige, Jr. Center for Environmental Studies at the University of Richmond School of Law engages in research, instruction, and public outreach on energy and environmental issues in the Mid-Atlantic region and beyond. Efforts to expand these opportunities and to ensure that students of all majors receive exposure to sustainability are priorities over the next phase of the Climate Action Plan Implementation.

Recent Accomplishments

Internships

A LEED internship program was started in Spring 2011. The internship accepts two students each semester to work with the sustainability coordinator and university project engineer on LEED applications for buildings on campus. The interns also work to expand campus understanding of LEED by offering LEED tours, working with classes, or giving open presentations. Through the internship, one student has already become a LEED Green Associate and is now working in the Facilities Department on additional LEED applications and intends to take a LEED AP exam in the near future. Approaching the third semester, the now competitive internship requires interested students to submit an application.

Courses

Please see Appendix 4 for a complete list of sustainability-related courses at the University. This list includes courses from the School of Professional and Continuing Studies (SPCS), which regularly offers courses that focus on sustainability awareness and environmental issues. SPCS courses are noted with a 'U' at the end of the course number. In Spring 2012, the sustainability coordinator will teach the first Personal Sustainability wellness class. Through this course, students will explore their own environmental footprint, as well as their contribution to the University's footprint. Additionally, issues of environmental justice will be considered. This course does not count toward any majors and will provide a wide variety of students with an opportunity to learn about sustainability.

Additional Educational Programs

Sustainability and Nature Institute

In the summer of 2010, SPCS held its first Sustainability and Nature Institute, a weeklong graduate program that introduces educators to the beginning principles of design and science that support an outdoor classroom. The objective is to develop a plan for an outdoor classroom where students can explore opportunities for decision making, learning, social development, and establishing sustainable practices grounded in the natural world.

Landscape Design and Horticulture

In early 2012, building off of the existing SPCS landscape design professional development program, which includes courses covering the application of sustainable design in residential and urban environments, SPCS launched a new professional development program in horticulture. This program includes workshops taught by horticulturalists, ISA Certified arborists, and LEED Certified design professionals on the science of horticulture and arboriculture as well as best practices for sustainable growth of shrubs, trees and perennials. Other topics covered in the 13-course certificate program include lowering impacts of construction on existing tree roots and minimizing compaction of soil in urban landscapes. Students also learn best practices for pruning and insect identification to minimize use of pesticides and promote natural species control. Additional topics include native plants, proper planting techniques and sustainable practices to ensure healthy growth with minimal impact to precious resources.

Outreach

SPCS partners with a variety of education entities to promote sustainability education in the community including Lewis Ginter Botanical Gardens, VCU's Rice Center, Virginia Environmental Endowment, Department of Game and Inland Fisheries, James River Association, Chesapeake Bay Foundation, International Society of Arborist, Native Plant Society, Audubon Society, Maymont Foundation, Children's Museum, Science Museum, Virginia Nursery and Landscape Association, Central Virginia Nursery and Landscape Association, and Piedmont Landscape Association.

Student Groups

GreenUR maintains an important role throughout the campus. The students of GreenUR lead several student efforts and promote sustainability and clean energy as a cohesive body. The group empowers students to play an important role in shaping the University's future sustainability policies. This fall, a chapter of USGBC Students was started at UR. The students of this group focus on expanding green building practices on campus and focus on individual student career development. Additionally, through support at a national level, this group will play a critical role in several University initiatives over the coming months, including Campus Conservation Nationals. The Richmond Environmental Law Society continues to provide a means for environmental law students to engage in sustainability efforts. The society hosts speakers and other events for the campus community.

Next Steps

River City Project

The River City Project (see Appendix 5) is scheduled to be piloted in Summer 2012. Led by a faculty champion, this workshop-style program will guide interested professors from any discipline through the process of expanding an existing course to include sustainability themes. The faculty champion plans to attend a leadership workshop to prepare for this program in January 2012. This program is designed after Emory's Piedmont Project and Northern Arizona State's Ponderosa Project. Through this program we will begin working toward the goal of exposing each student to the issues of sustainability.

Community Education

In summer 2012, SPCS will offer its first Global Sustainability Institute, a weeklong program that will bring together undergraduate and graduate students as well as local business leaders and sustainability professionals to learn about the impact of global sustainability practices and issues.

SPCS will expand its professional development programs by establishing the Environmental Stewardship and Sustainable Design Program (ESSDP) to include the current landscape design and horticulture programs as well as new programs in LEED certification, solar training and energy audits. SPCS also plans to develop a new series of youth classes that focus on ecology and the environment as part of ESSDP. All ESSDP courses will utilize the native habitat and plants that encompass the campus of University of Richmond including the surrounding parks and botanical gardens in and around Richmond Virginia. Students will learn hands-on skills that encourage discovering of the ecology that surrounds them in and around the James River.

The sustainability office will focus on creating collaborative programs through RecycleMania and Campus Conservation Nationals during Spring 2012. Programs will include collaborative initiatives between the sustainability office and GreenUR, USGBC Students, International Education, Common Ground (the University's diversity and inclusion initiative), Residence Life, Bonner Center for Civic Engagement, Communications, and others. These partnerships will allow sustainability messages to reach the community in new and unique ways and should serve to sustain the momentum of long competitions.

Peer-to-Peer Education

The Green Office Program has created a mode for distribution of information about sustainability to staff. Staff members work together through checklists designed to inform the office about the impacts of various activities on the environment. An eco-advisers program would provide a mode for sharing information with students. The eco-advisers would run programs and share information related to sustainability with their halls. They would also play an important role in sustaining participation in campus competitions including RecycleMania and Campus Conservation Nationals.

Orientation

Including sustainability in both new student and employee orientation programs will play a major role in creating a culture of sustainability. Programs during orientation will also provide individuals with the resources needed for them to fully participate in sustainability related activities. New students should be introduced to sustainability before they step foot on campus. New students will be provided with information about a green move-in. Suggestions for students to use reusable plastic totes or to save boxes for move-out will reduce the amount of trash generated during move-in and set a level of expectations related to sustainability. Additionally, sustainability programming during orientation will provide students with information about how to live green at UR. This information will include how building systems work in the residence halls, as well as how recycling at the University works, and what organizations students may elect to join to become more involved. For staff, similar information will be provided, in addition to information about the Green Office Program.

Measurement and Verification

In the past, measuring educational achievements in sustainability has been complicated, as the efforts are not captured directly in greenhouse gas emissions inventories. However, with the use of STARS, the University will be able to track and measure progress and evaluate and prioritize new program options.

Appendix 1: University Temperature Guidelines and Energy Policy (draft)

Introduction

The University of Richmond is committed to reducing energy consumption on campus. In addition to reducing energy costs, energy efficiency and conservation benefit the environment and extend the useful life of equipment. While energy efficiency and conservation are the focus of this policy, comfortable living, working, and studying conditions must also be achieved. University Facilities is charged with the implementation of this policy and the sustainability coordinator shall update the policy as needed.

Temperature Set Points

In order to maintain reasonable comfort and reduce energy consumption the University has established these guidelines for heating and cooling.

	Building Occupied	Building Unoccupied
Summer	74-78 degrees Fahrenheit	83 degrees Fahrenheit
Winter	66-70 degrees Fahrenheit	61 degrees Fahrenheit

Occupied times for building spaces will be determined by work and class schedules from the registrar and event schedules as listed in Resource 25. The Campus Energy Management System will use "Optimized Start" programs to minimize equipment run times. Building occupants across campus will be made aware of excessive heating and cooling demands on extreme temperature days. Occupants will be provided with suggestions for how to decrease the energy demand within their building.

For locations with temperatures that are centrally controlled, University Facilities will manage building temperature. Occupants who control their own thermostats shall adhere to the University established temperature set points.

Exceptions will be made for sensitive research laboratories and other areas with environmentally or temperature-sensitive equipment or objects, such as computer labs. Spaces such as research facilities requiring critical temperature settings will be more tightly controlled.

Cooling temperatures only apply where air conditioning equipment currently exists.

Occupants should remember to dress for the weather.

Space Heaters

Due to their inefficiency and the fire risks they present, personal space heaters are prohibited except where authorized by University Facilities.

Faculty and staff may request an approved space heater from University Facilities. At this time University Facilities will assess the area for other potential solutions. If no solutions are found and Facilities determines the space warrants a space heater, Facilities will provide one. Space heaters will be allowed in new construction.

Space heaters not approved by University Facilities may be removed.

Building Management and Community Participation

Windows and doors of conditioned spaces should be kept closed. When electing to open windows please turn off air conditioning or heating and close the door to the space from the rest of the building. By closing off the space and turning of HVAC systems in that area, excess energy use and inefficiency is avoided. All windows and doors should always be closed overnight.

Personal computers, printers, other office equipment, and lights should be turned off when not in use and power management features of personal computers should be enabled.

Every member of the campus community is asked to turn out the lights and other electronic equipment whenever they are the last person leaving a room.

Appendix 2: Vehicle Maintenance, Operating, and Green Purchasing Policies (draft)

Introduction

The University of Richmond is committed to the safety of its drivers and to the minimization of its environmental footprint. The guidelines set forth in this policy work towards accomplishing both of these goals. Removing distractions from the driver will increase the driver's ability to focus on the road and increase safety. Maintaining vehicles properly optimizes their fuel efficiency and extends their operational lives. Additionally, this policy prohibits idling of University vehicles. Idling of a gas-powered vehicle longer than 10 seconds requires more fuel than to restart it; by eliminating idling the University can significantly reduce fuel consumption in fleet vehicles. Idling not only wastes fuel, it reduces engine life and unnecessarily generates harmful emissions and noise pollution. Finally, by actively seeking to purchase only Environmentally Prepared Products (EPPs) the University minimizes the footprint of its fleet as much as possible.

Maintenance

- Scheduled maintenance for all vehicles that transport passengers will be conducted quarterly, but no less frequently than every 3,000 miles. All other vehicles, including carts, are to be scheduled for annual inspection and semi-annual maintenance.
    - The Auto Shop will assign two numbers per vehicle, corresponding to the service months.
    - The Auto Shop will place an "Emissions Certified" sticker on the windshield indicating when the department is responsible for scheduling maintenance with the auto shop.
- It is the Department's responsibility to schedule regular maintenance
- All vehicle users are required to maintain a vehicle log or check card system to record the following on a monthly basis at minimum:
    - Miles driven or hours operated;
    - Tire pressure;
    - Oil and other fluid levels;
    - Water levels in electric cart batteries; and
    - Any problems noted.
- The auto shop will check the log entries or check cards when the vehicle is serviced.

Operation

- In order to operate any University vehicle (one that is owned, rented or leased in the name of the University), the driver must have a valid driver's license, a satisfactory driving record, and satisfactorily complete the online defensive driving course through the Office of Safety Services and Risk Management.
- Non-diesel-powered University vehicles and equipment will be idled only in an emergency situation or as required for public safety vehicles. The operator of the vehicle/equipment will turn off the unit and remove the keys from the ignition.

- Idling of diesel-powered vehicles is generally unnecessary, except at cold start-up. According to the EPA, engine manufacturers typically recommend a warm-up time for diesel engines of less than five minutes. Further, idling causes significantly more wear on engine parts than driving at regular speeds. Therefore, idling of these vehicles will not be allowed, with the exception of cold starts.
- Vehicles should not be left unattended or idling at a loading dock, delivery stop, or at other locations where exhaust emissions may enter an occupied building such as near building air intakes, entrances, or open windows, etc. Engines should be left running only as long as it takes to unload or load passenger.
    - University shuttles stopped at the Tyler Haynes Commons Transportation Hub shall not run engines while waiting to begin the next trip
    - University Facilities, in conjunction with the sustainability coordinator, shall place and maintain signage indicating that idling is prohibited in places where it may be common, including but not limited to: all loading docks, the post office, Tyler Haynes Commons, Robins Center, etc.
- Avoid hard acceleration and braking to prevent excessive wear on vehicles. This also saves fuel and reduces potential conflicts with pedestrian, bicycle, and other vehicle traffic.

Purchasing

- Strategic Sourcing and Payments shall be responsible for the purchase of all University-owned motor vehicles including gasoline or electric carts and Segways
    - Every effort shall be made to utilize hybrid and alternative fuel vehicles in the University's fleet
    - Should alternative fuel or hybrid vehicles be unavailable to meet specific service needs, the most efficient conventional vehicles available will be used
- Each department utilizing a vehicle will conduct an annual audit to determine vehicle condition.
    - Once a vehicle is deemed unsatisfactory, the requesting department representative will consult with Strategic Sourcing and the fleet manager to reevaluate the need for the vehicle.
    - If the need still exists for the vehicle then the most efficient replacement shall be found.
    - Departments are responsible for notifying Strategic Sourcing and Payments of any transfer of licensed vehicles to a different department or any vehicle that is available for surplus (no longer used as a University vehicle). This process ensures that insurance, tags and title information remain up to date and correct. Strategic Sourcing and Payments has sole responsibility for managing surplus vehicle inventory.
- In order to reach the goal of minimizing the University's fleet's carbon footprint, business as usual practices may need to be modified to reduce the amount of driving on campus and the vehicles present in the University's fleet

Appendix 3: Revolving Fund

Objective: To capture the operating budget savings that result from energy efficiency projects and use that money to fund additional projects or provide seed money for future projects that support the goals of the Climate Action Plan.

Precedent: According to the Sustainable Endowments Institute report, Greening the Bottom Line[1], at least 47 schools operate revolving funds. Many use a flat simple payback period as the criteria for funding, although some funds allow projects without a defined payback period, but with educational or other relevant outcomes, to receive funding without requiring the money to be repaid. Additionally, most of these schools receive the majority of funding (ranging from $10,000 to $12,000,000 [2]) from the school; however, alumni gifts, student fees, and grants are frequently used to supplement the initial investment from the school.

Suggested Model: Using the 2011 energy audit results as the basis for the initial set of projects, the University will invest $1,000,000 in a revolving fund. Projects from the energy audit results and any additional projects that would qualify will be reviewed by a team of representatives from Finance, Facilities, and the Sustainability Working Group. Projects that have a payback period of six years or less and that are in line with the University's sustainability goals will be approved. After receiving approval, funds will be transferred from the revolving fund index to the appropriate index of the department completing the project. After completing the projects, operating budget savings will be transferred to a new sustainability fund index. This transfer of savings will end when 110% of the initial cost of the efficiency projects has been captured. The captured savings will fund projects from the energy audit phases two and three as well as other efficiency projects which will subsequently also be paid back into the fund. The original revolving fund money will only be used to fund projects that meet the six-year back criteria. The interest paid into the fund can also be used as seed money for large projects that would help reach University sustainability goals. All projects will be evaluated for funding on an individual basis. Payback period will be heavily weighted, but projects with substantial educational and greenhouse gas reduction benefits will be considered. All projects must be in line with the goals established in the University's Climate Action Plan. This model allows for flexibility in project selection as the cost per unit reduction in greenhouse gas emissions increases.

Logistics: Initial budget savings will be transferred at the end of the fiscal year into a newly created sustainability fund index. The money for an approved project will be transferred from the sustainability fund index and into the appropriate department's index in order to fund the project. Following completion of an efficiency project, the operating budget for the related area would remain stable. Monitoring the change in expenses and the building monitoring systems, the exact energy savings would be calculated and the subsequent monetary savings would be transferred back into the revolving fund until the

[1] Sustainable Endowments Institute. 2010. <http://www.greeningthebottomline.org/>
[2] AASHE. <http://www.aashe.org/resources/campus-sustainability-revolving-loan-funds>

full loan amount plus 10% of the initial project cost is repaid, at this point the operating budget would be lowered to reflect the new operating rate. Selected projects with payback periods of longer than six years may have a revised repayment plan and may only need to repay a portion of the seed money provided. The payback model will be determined individually for these projects.

Appendix 4: Sustainability-Related Courses

ANTH 101 – Introduction to Cultural Anthropology
ANTH 307 – Indigenous Peoples of the Americas
ARTS 220 – Drawing From Nature
ARTS 279, PHIL 280 – Land Art and Landscape: Aesthetics, Design, Practice
BIOL 100 – Biology of Plants
BIOL 108 – Environmental Biology
BIOL 109 – Introduction to Ecology
BIOL 110 – Emerging Infectious Diseases
BIOL 111 – Marine Biology of the Chesapeake Bay
BIOL 207 – Ecology
BIOL 221U – Environmental Ethics
BIOL 223U – Basics of Biology
BIOL 300U – Conservation: Agenda for the Future
BIOL 301U – Environmental Ethics
BIOL 305 – Plant Anatomy
BIOL 309 – Invertebrate Zoology
BIOL 328 – Vertebrate Zoology
BIOL 332 – Tropical Marine Biology
BIOL 333 – Microbial Ecology
BIOL 334 – Oceanography
BIOL 360, GEOG 360, ENVR 360 – Environmental Remote Sensing
BIOL 383 – Tropical Biology and Conservation
BIOL 398U, MLA 598U – Global Sustainability
BUAD 392 – Ethical, Social, and Legal Responsibilities of Business
CHEM 110 – Pollutants in the Environment
CHEM 316 – Environmental Chemistry
ECON 105 – Introduction to Global Economics
ECON 230, ENVR 230 – Environmental Economics
ECON 330, ENVR 330 – Environmental and Resource Economic Theory
EDUC 598U – Sustainability and Nature Institute
ENGL 333 – Literatures of Globalization
ENVR 201 – Introduction to Environmental Studies
ENVR 269 – Topics in Environmental Ethics
ENVR 300 – Special Topics – Environmental Studies
ENVR 320 – Directed Research – Environmental Studies
ENVR 350 – Environmental Gradients
ENVR 360, PLSC 362 – Environmental Law and Policy
ENVR 391 – Environmental Senior Seminar
ESM 305U – Disasters, Characteristics and Physical Impacts
ESM 317U – Risk, Hazard and Impact Analysis
ESM 505U – Disasters, Characteristics and Physical Impacts
ESM 563 U – Hazard, Vulnerability, and Risk
ESM 564U – Defense of Communities

ESM 595U – Hazards and Threats for the Future
ESM 595U – Hazards and Threats for the Future
FYS 100 – Climate Change and the Media
FYS 100 – Entrepreneurship and Invention as the Drivers of Economic Growth
FYS 100 – Facts and Fiction of Climate Change
FYS 100 – Green Schools
GEOG 206 – World Regional Geography- Developed Regions
GEOG 207 – World Regional Geography- Developing Regions
GEOG 210 – Geographic Dimensions of Human Development
GEOG 215, ENVR 215 – Geography of the James River Watershed
GEOG 215U – Urban Geography
GEOG 250, ENVR 250, BIOL 250 – Introduction to Earth Systems and Physical Geography
GEOG 260, ENVR 260, BIOL 260 – Introduction to Geographic Information Systems
GEOG 315, ENVR 315 – Landscape Ecology
GEOG 320 – Power, Space and Territory: Geographies of Political Change
GEOG 320U – Understanding Natural Disasters
GEOG 321U - Volcanology
GEOG 333 – Geographies of Amazonia
GEOG 345, ENVR 345 – Society, Economy, and Nature: Global Perspectives on Sustainable Development
GEOG 360, ENVR 360 – Environmental Remote Sensing
GEOG 365, ENVR 365 – Advanced Spatial Analysis
GEOG 370 – Geographies of Economic Development and Globalization
GEOG 380 – Ecotourism
GEOG 380 – Mapping Sustainability: Cartography and Geographic Information in an Environmental Context
GEOG 380ST – Geography of the Commonwealth
GEOG 401 – Geography Capstone
GEOG 598U ST – Earth's Changing Climate
HIST 216 – American Cultural and Intellectual History Since 1865
HIST 391 – Transnational Social Reform
LA 320U – Environmental Law
LAWE620 – Environmental Law
LAWE 645 – Land Use Planning
LAWE 660 – Environmental Lawyering
LAWE 666 – Energy Law
LAWE 699G – Special Topics: Law of Global Warming
LAWE 699C – Environmental and Energy Law in China
LAWE 709 – Animal Law
LAWE 729 – International Environmental Law
LAWE 777 – Labor Law in a Global Economy
LDST 325 – Leading Socially Active Businesses
LDST 356 – Leading Change
MBA 508 – Social, Ethical and Legal Issues in Business
MBA 545 – Strategic Resource Management
MGMT 348 – Environmental Management

MLC 260 – Nature, Nurture, Neurons: Science and Society in 20th Century East European Literature
PHIL 220 – Contemporary Moral Issues
PHIL 299 – Philosophy of Science
PHYS 134 – Biological Physics
PLSC 260 – Introduction to Public Policy
PLSC 351 – Globalization
PLSC 360 – International Development Policy
PLSC 379 ST – Public Health and the Environment

Appendix 5: River City Project Proposal

Objective: Launch a faculty development program that will promote the integration of sustainability into the curriculum across all disciplines at the University of Richmond. This goal is in line with the Climate Action Plan educational goal of including the tenets of sustainability throughout the academic experience of all students, and it is in line with The Richmond Promise goals of Integrated Academics, Community Engagement, and Distinctive Experience. The program will expand upon the successes of the established environmental educational programs.

Goals of the River City Project:

- Ensure that each student develops an understanding of his or her major's relationship to sustainability. Ultimately, each student should be exposed to sustainability in three classes during their time at UR.
- Utilize the unique connection between Richmond and the James River in direct or indirect ways to explore sustainability within the classroom.

Model: Participating faculty will attend a two-day workshop held immediately following spring semester. During the workshop, faculty will discuss sustainability issues and through exercises and discussion groups, will develop an understanding of the relationship between their specialty and sustainability. The workshop will include classroom work and outdoor field trips. After completion of the workshop, participants will submit to the sustainability coordinator an updated syllabus for one of their classes demonstrating how they have integrated sustainability into the curriculum. Students in the sustainability classes will be encouraged to participate in the annual Undergraduate Research Symposium. Additional opportunities for faculty to continue a dialogue on sustainability will also be arranged each semester.

Budget for Year 1:

- Funding for faculty leader to attend two day Sustainability Across the Curriculum Leadership Workshop which will be held at Emory in January 2012: $1,000
- Participant stipends (to be distributed after completion of a revised syllabus): $1,000 x 8 participants = $8,000
- Facilitator stipend: $1,000
- Food, transportation, supplies, and subsequent gatherings: $1,000
- Total: $11,000

History: Emory University began the Piedmont Project in 2001, which has become a national model for the development of faculty workshops focused on sustainability across the curriculum. Emory's program has resulted in the inclusion of sustainability in more than 165 courses. University of Maryland began the Chesapeake Project in 2009 and has had more than 50 courses revised to include sustainability. The Association for the Advancement of Sustainability in Higher Education (AASHE) manages the Leadership Conference.