

SUSTAINABLE ENDOWMENT INSTITUTE'S
"CAMPUS SUSTIANABILITY REPORT CARD 2009"

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
SUSTAINABILITY POLICY SURVEY RESPONSE

INTRODUCTION

Virginia Tech is committed to sustainability, and has worked actively throughout this past year to promote awareness, expand related educational opportunities, and implement substantive operational changes. The university has focused particularly on measures to improve energy efficiency and conservation, and emphasized the incorporation of green building design into select capital construction projects, and the renovation of existing buildings. President Charles W. Steger has charged the university to develop a draft Sustainability Plan and Virginia Tech Climate Action Commitment by the end of the 2008 Fall Semester, and to conduct reviews of those documents utilizing the University Governance System during the 2009 Spring Semester with the goal of approving those documents at the end of the 2009 Spring Semester. Sustainability initiatives have not been limited to the university campus, however, but have included collaboration with local jurisdictions and organizations. Virginia Tech, the Town of Blacksburg, and our local citizens group Sustainable Blacksburg, formed a green partnership last year and hosted "Sustainability Week 2007." This first-ever week-long event featuring lectures, a Sustainability Fair, and an appearance by Virginia Secretary of Natural Resources L. Preston Bryant, Jr., received recognition by the Governor of Virginia. Especially notable has been the significant, sustained, and varied involvement by individual students and student organizations. These student efforts have been the driving force behind many of the new initiatives that we will highlight in our survey response.

We are delighted to have the opportunity to share with the Sustainability Endowments Institute the numerous sustainability initiatives for Virginia Tech using the questions in your Sustainability Policy Survey.

1) How have your school's construction and/or renovation projects included green building features?

For example: adopting a green building policy, using LEED certification or incorporating green building design into new buildings, renovations, and retrofits of existing buildings.

All new projects in 2008 and beyond will be designed to LEED Silver-level standards. Decisions to apply for LEED certification are made on a case-by-case basis. If a project fails to meet certification criteria, as many green design standards are incorporated as possible. Virginia Tech registered its first LEED project in 2007.

Virginia Tech is presently designing five buildings to a LEED Silver level to include: the Virginia Bioinformatics Institute (VBI) Addition (50,000 gross square feet), the Institute for Critical Technology and Applied Science (ICTAS) II (42,000 gross square feet), the Visitors and

Undergraduate Admissions Center (20,000 gross square feet), the renovation of the Ambler Johnston Residence Hall (272,000 gross square feet), and the renovation of Henderson Hall and construction of a separate and adjacent Black Box Theater (37,500 total gross square feet).

Our recently revised Policy 5505, Campus Energy and Water, focuses on energy and water efficiency and conservation, and is a requirement for all new construction and renovations on campus. Low flow water systems, room occupancy sensors, indoor air quality ductwork treatment, variable speed drives and pumps, and heat recovery are but a few of the many sustainable design features that are incorporated on all projects as defined by the university's design guidelines and standards.

The primary exterior cladding material on all buildings is a native limestone, quarried within a few miles of the campus. This material is unique and known to our university community as "Hokie Stone," which is a reference to our university nickname. Not only is this material extremely long lasting and durable, but it is a local product supporting traditional stone masonry craftsmanship. We have adopted a new installation process that provides enhanced insulation between the Hokie Stone and the building structure which significantly increases energy efficiency.

Many of the buildings are heated and cooled using a central steam and chilled water system.

The university has recently completed the first "green roof" system on campus. The Life Sciences I building that was recently completed actually has two small green roofs. The roof was designed to accommodate plants and features with the intent to assist with energy savings and stormwater quality. This building is being studied by students and faculty in departments within the College of Architecture and Urban Studies and the Horticulture Department in the College of Agriculture and Life Sciences, as part of on-going research initiatives.

Our new residence and dining halls have thermal glass windows which significantly reduce energy consumption.

Another project has installed "rain gardens" as a Best Management Practice to meeting the stormwater quality regulations and LEED sustainable goals.

Several new parking lots have been built, or are in construction, using Low Impact Development (LID) bio-swales and bio-retention features. We have employed "Bio-Cells" and "Infiltration Trenches" to effectively manage stormwater and comply with sustainability goals. These Best Management Practices create a Low Impact Development site by minimizing the effects on the environment outside of the project sites perimeter. On-site storm water detention (both quality and quantity) is the norm for all future development.

In 2007, the university contracted with an engineering consultant that specializes in "Low Impact Development, and "Sustainable Development" through the implementation of Best Management Practices. The goal of this project is to develop a campus-wide comprehensive hydrologic model to better analyze and manage stormwater. As part of every project on campus, storm water management is a key ingredient that must be dealt with in a sustainable manner. As part of the

LEED certification process, this stormwater management strategy assists in gaining qualifying LEED points, depending on the strategy taken. A goal that the university strives to meet on every project is to have a zero-net increase in stormwater runoff from each project. Once this new stormwater management strategy is complete (estimated final delivery by January 2009), existing facility retrofit opportunities will be identified with regards to improving stormwater management at the site. The university also strives to reduce the amount of impervious surfaces and increase the "green" surfaces that promote a low impact footprint for each project, as appropriate.

The university provides commissioning through the systematic process of ensuring that a building's complex array of systems is designed, installed, and tested to perform according to the design intent and the building user's operational needs. This systematic process ensures that the building's performance is efficient and verified against the building commissioning standards.

The university is currently developing annual specifications and ordinances for review and approval by the senior administration and the board of trustees that will allow the university to manage Erosion & Sediment Control and Stormwater in-house. This will provide additional opportunity for the university to improve the quantity and quality of stormwater runoff campus-wide and continue to progress towards a sustainable stormwater system.

The university continually manages the permit for the NPDES Phase II: Small Municipal Storm Sewer System (MS-4) as regulated by the Department of Conservation and Recreation. This permit outlines Best Management Practices that are created to limit the impact on the environment. There are six Minimum Control Measures that the university is required to meet on an annual basis: (1) public education & outreach on stormwater impacts, (2) public involvement and participation, (3) illicit discharge detection & elimination, (4) construction site runoff control, (5) post construction stormwater management, and (6) good housekeeping. (Note: The MS-4 also pertains to the SEI survey questions 5, 6, and 7).

http://www.dcr.virginia.gov/soil_&_water/vsmp.shtml

We are currently conducting a campus-wide Inflow & Infiltration study of our sanitary sewer system in an effort to reduce the amount of erroneous flows (i.e. storm water flows, domestic water flows, etc.) that enter into the sanitary sewer system undetected.

During 2007 we converted 13 acres of the campus from regularly maintained turf grass to low maintenance native grass meadows and wildflowers.

Virginia Tech is in the process of preparing an application for submission to the Arbor Day Foundation for recognition as a Tree Campus USA university. Recognition demonstrates our commitment to both our campus beautification and the reduction of carbon dioxide in the atmosphere.

2) In what ways has your school encouraged the use of alternative forms of transportation?

For example: maintaining a vehicle fleet powered by alternative energy, operating a campus shuttle that runs on biodiesel or another clean-burning fuel, offering incentives for carpooling or using

public transportation, coordinating a bicycle-sharing program, incorporating planning decisions that support a pedestrian-friendly or bike-friendly campus.

Virginia Tech has an outstanding Alternate Transportation Program as noted in the Campus Sustainability Report Card 2008.

Virginia Tech's alternate transportation program is supported by a full-time manager who serves to encourage members of the campus community to bike, walk, or use public transportation. Faculty, staff, and students can use the Blacksburg Transit (local public transportation) fare-free, i.e. they do not have to pay at the time they board the bus. The cost for students to use the Blacksburg Transit is included as a part of their mandatory student comprehensive fees, and the cost for faculty and staff to use the Blacksburg Transit is covered by a percentage of the cost of parking permits. In addition to fare-free local transit, other incentives include the emergency ride back program and "occasional use" parking permits for use of alternative modes of transportation. Virginia Tech has received federal enhancement grants to build bike trails, bike lanes, and provide other amenities on campus. Physical Plant has converted 15 vehicles in its fleet to B-20 biodiesel, has purchased one hybrid vehicle, and is in the process of exploring turf and fuel friendly vehicles. Fleet Services has added four hybrid vehicles to their rental inventory. Source <http://facilities.vt.edu/ot/alternative/cap.asp#bbw>

Virginia Tech's transportation program received a "Best Place for Commuters" silver level award from the US Environmental Protection Agency and the Department of Transportation. To date over \$400,000 in federal enhancement grants have been spent to build bike trails, bike lanes, and provide other bicycling amenities on campus. Virginia Tech received notification additional enhancement grant funds in 2008 for Phase 4 of Hokie Bikeways.

The Virginia Tech Transportation Master Plan has special sections devoted to bicycle, pedestrian and transit access on campus to ensure that as the campus grows, it will become more bicycle, pedestrian and transit friendly.

All capital projects are reviewed by the alternative transportation manager to ensure that proper consideration has been given to bike access and parking and access to public transportation.

Virginia Tech partners with GoLoco and RIDESolutions to provide students and employees with options to find others to carpool with. <http://facilities.vt.edu/ot/alternative/>

New public transit incentives in 2008 – 09 include a 25% subsidy of Smart Way passes (regional transit). Additionally, the pilot vanpool program in 2007-2008 proved successful and is now a permanent part of the Alternative Transportation program. <http://facilities.vt.edu/ot/passes.asp>

Parking Services is raising permit rates to cover the "true cost" of parking, which will be an incentive for single occupancy vehicle drivers to explore other transportation options. A percentage of parking permit revenues goes to support alternative transportation on campus.

There are reserved areas in parking lots for carpool parking and reserved spaces on campus for vanpool parking. <http://facilities.vt.edu/ot/alternative/cap.asp#students> and <http://facilities.vt.edu/ot/alternative/van.asp>

Alternative Transportation has a booth set up during new student orientation each summer. The booth provides parents and students with transportation options, other than bringing a car to campus.

3) How has your school taken steps to improve energy efficiency and/or obtain energy from renewable sources?

For example: conducting a carbon emissions inventory, committing to a reduction in greenhouse gas emissions, investing in energy-efficient appliances, developing an energy conservation program, purchasing renewable energy credits, installing on-site wind or solar facilities or making other renewable energy investments.

President Charles W. Steger recently announced that the university will develop the Virginia Tech Climate Action Commitment by the end of spring semester 2009. The installation of occupancy sensors, commissioning of HVAC systems, and lighting retrofits on campus have increased energy efficiency. Virginia Tech's climate change efforts have been focused on campus transportation, not renewable energy purchases.

Under the leadership of Professor John Randolph, approximately 50 Virginia Tech graduate and undergraduate students in the Urban Affairs & Planning (UAP) Program within the College of Architecture & Urban Studies conducted an inventory of Energy Use and Greenhouse Gas (GHG) emissions for Virginia Tech, the Town of Blacksburg, and the residents of Blacksburg. The results of the inventory were presented to university and town leaders and policy makers during the 2008 Spring Semester. We are currently interpreting and validating the results of the inventory, and will subsequently develop strategies for emission reductions.

In the Virginia Energy Plan released in September 2007, Governor Timothy M. Kaine set a goal for the state to reduce greenhouse gas emission by 30 percent by 2025, and has established a Governor's Commission on Climate Change. The Commission's report is to be released in December 2008, and Virginia Tech and the Mayor of the Town on Blacksburg are participating in this endeavor.

Policy 5505, Campus Energy and Water, was recently revised and includes energy and water efficiency and conservation components.

The university is purchasing energy-star related computer and office machines (copiers and fax machines). Energy-star has become the industry standard in those areas.

On April 5, 2007, Governor Kaine signed Executive Order 48 (2007), "Energy Efficiency in State Government" which requires the university to "reduce costs of non-renewable energy purchases by an additional 15% of fiscal year 2006 expenditures by fiscal year 2010." Virginia Tech was one of only 17 state agencies to achieve the 10% energy savings goal established for 2006 in the previous Executive Order 54 (2003). State agencies that did not achieve the 10% energy savings goal for 2006 are now required to reduce costs of non-renewable energy

purchases by 20%. For fiscal year 2006, the reported energy costs were \$15,400,000 (baseline). Thus, for Executive Order 48 our reduction goal is \$2,310,000. We have a plan in place to reduce our energy consumption and achieve that goal subject to unanticipated increases in the cost of energy which we cannot control.

Virginia Tech is pleased to be one of the founding partners, along with Hannon Armstrong and Pepco Energy Services, in the \$500 million “Energy Efficiency Partnership of Greater Washington” established in October 2007. Virginia Tech and our partners are launching a large-scale building retro-fitting project in the Washington metropolitan area. Pepco Energy Services will carry out energy audits, supply materials, and perform building retrofits as well as guarantee the energy savings of the retrofit projects. Hannon Armstrong, an energy efficient financier, has made a substantial commitment to finance the retrofitting at no capital cost to building owners. Virginia Tech enhances the partnership through its core missions of research, learning, and outreach.

Virginia Tech has a \$28.5 million capital project established to carry out upgrades to the steam utility distribution system and Central Steam Plant. This project will provide new steam distribution underground piping across campus which will greatly improve efficiency, will reduce heat losses, and provide a new ability to co-generate electricity during the summer months. Replacing steam traps and installing Variable Frequency Drives on our higher horsepower fan motors significantly reduces energy consumption. Annually this project will provide more than \$1 million in fuel savings and will reduce emissions by 10 tons.

Housing and Dining Services manages 50 of the 100 buildings on the Blacksburg campus. A significant number of initiatives have been undertaken to enhance energy and water efficiencies and conservation in the residence halls. For example, all 3.0 gallons per minute shower heads were replaced with 2.0 gallon per minute pressure compensating/adjustable shower heads which reduce water flow by 33%. We have retrofitted T12 fixtures with the more efficient T8 fixtures in common areas. We have replaced the stand-alone 9v battery operated smoke detectors with the 10-year lithium type. Most of the residence halls have received new windows. We recently have replaced the roofing systems on some residence and dining halls with a “White Roof System” which is a white membrane type which significantly reduces the cooling needs of the building compared to the previous rubber/tar/gravel systems. Sustainable carpet has been placed in Slusher, Vawter, Miles, Newman, Lee, Pritchard, Barringer, and O’Shaughnessy Residence Halls.

We have retrofitted light fixtures in Wallace Hall, Whittemore Hall, Hahn Hall, the Vet Med facilities, and the Human Resources Annex and expect to save over \$120,000 annually. Fralin Hall and Hancock Hall will also be retrofitted with enhanced lighting.

The recent installation of energy saving occupancy sensors in 146 classrooms will result in \$10,370 annual savings in electricity costs.

A campus-wide water audit of all water consuming systems on the main campus identified approximately \$322,000 in annual savings opportunities. Water conservation measures

implemented in McBryde Hall, Pamplin Hall, and the Sterrett Facilities Complex save approximately 2.1 million gallons of water annually.

The university recently completed construction on a \$5.85 million Boiler Pollution Controls project, which added a bag-house and an acid gas scrubber to Boiler #7 (older coal fired boiler). These controls are expected to reduce particulate emissions from the central steam plant from 42 tons per year to 2 tons per year as well as reduce sulfur dioxide emissions from 460 tons per year to 110 tons per year. Boiler #10 is currently being retrofitted with new low NOx burners and air controls, which will reduce nitrogen oxide emissions and improve efficiency. Boilers #8 and #9 will be retrofitted in a like manner this year.

The College of Architecture and Urban Studies will lead Virginia Tech participation in the 2009 Solar Decathlon competition. This is an international competition for colleges and universities around the world to design, build, and operate a solar-powered house, and is sponsored by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy in partnership with its National Renewable Energy Laboratory. Virginia Tech participated in the 2003 and 2005 competitions on the Mall in Washington, D.C, and placed 4th out of 18 teams overall in 2005. <http://www.research.vt.edu/resmag/2006Summer/Solarpage01.html>

We are currently conducting research with renewable energy sources to include Wind, Solar, Hydro, Geothermal, Ocean, and Tidal. <http://www.research.vt.edu/energy/reswind.html>

The university hosts the "Virginia Center for Coal and Energy Research (VCCER)," a state-wide research center established by the General Assembly in 1977. VCCER has a long history of research and outreach for the Commonwealth including the annual report, "Virginia Energy Patterns and Trends." It is becoming a national leader in research on carbon sequestration from coal combustion.

Green Supercomputing: Associate Professor Wu-Chun Feng, from our Departments of Computer Sciences and Electrical and Computer Engineering, is the founder of the Green500 List which is a ranking of the most energy-efficient supercomputers in the world. Energy efficiency in supercomputing is becoming as important as raw materials for modern supercomputers. <http://www.vtnews.vt.edu/story.php?relyear=2008&itemno=457>

The university is a corporate member of the United States Green Building Council (USGBC), and regularly sponsors local chapter events. The current chair of the USGBC is a Virginia Tech alumna.

The university is also a member of the Association for the Advancement of Sustainability in Higher Education (AASHE).

4) Does your school employ a sustainability staff? If so, please give the number of full-time employees who work primarily on campus sustainability initiatives. If your school employs any part-time sustainability staff, please list that number separately.

The Energy and Sustainability Coordinator is a full-time faculty position which reports to the Associate Vice President for Facilities and subsequently to the Vice President for Administrative Services. The Energy and Sustainability Coordinator serves as liaison between the administration, faculty, staff, students, the local community, and private industry.

Additional full-time personnel include:

- a. Virginia Tech Recycling Coordinator (1)
- b. Virginia Tech Recycling Operations Manager (1)
- c. Virginia Tech Recycling Crew Chief & Worker (2)
- d. Alternative Transportation Manager (1)
- e. Numerous Teaching and Research Faculty. Examples include:
 - (1). Earth Sustainability Series Course Director and Coordinator (2), www.uccs.ceut.vt.edu/
 - (2). Virginia Tech Green Engineering Program Director (1), www.eng.vt.edu/green/
- f. Dining Services Sustainability Coordinator (1)
- g. Virginia Tech has nearly 20 faculty, staff, and students who are LEED Accredited Professionals to include Jack Davis, Reynolds Metals Professor and Dean of the College of Architecture and Urban Studies. A number of other employees have attended LEED accreditation seminars and workshops.
- h. Seven employees in the Department of Facilities Services are Certified Energy Managers.

Part-time personnel include:

- a. The Energy and Sustainability Committee hired a student intern to help the summer subcommittee formulate the Virginia Tech Climate Action Commitment (1)
- b. Virginia Tech Recycling Intern (2)
- c. Student Government Association Intern to work for the Dept of Transportation (1)
- d. Graduate Student Assistant assigned to the Energy and Sustainability Coordinator (1)

5) Please describe your school's recycling and composting programs.

For example: materials recycled and composted, current waste diversion rate (the percentage of recyclable and/or compostable waste diverted from traditional disposal).

The Recycling program reports a total of over 2.6 million pounds of recycled material in 2006. Materials recycled include batteries, yard waste, aluminum, glass, cooking grease, tires, fluorescent lamps, and plastics. Yard waste is composted and some of the material is provided to the Hahn Horticulture Garden, VT Farms, and community garden projects.

In 2007 we recycled 2.9 million lbs (an increase of 0.3 million lbs from 2006). The Virginia Tech Electric Services has a scrap metal recycling program and a significant amount of the old metal removed during the installation of new distribution piping (mentioned in item 3 above), contributed to our increase.

In 2007 our overall VT recycling percentage was 34% (an increase of 12% over 2006).

In 2007 Virginia Tech participated in the first state-wide university electronic waste recycling competition and collected 122,600 pounds of e-waste.

Materials recycled include: corrugated cardboard, Sorted Office Paper, Magazines, Newspapers, Phonebooks, Print Shop paper cuttings, , aluminum cans, glass bottles (includes brown), steel cans, plastic bottles (#1 & #2), scrap metals (includes old farm equipment, air handlers, steel pipe, copper cabling, etc), shipping pallets, leaves/brush, fluorescent lamps & ballasts, toner cartridges, kitchen grease, e-waste (monitors, hard drives, printers, microwaves, TVs, etc), auto batteries, tires.

Materials collected and credited by state DEQ as “Solid Waste Reused”: carpets, furniture, room accessories (fans, shelving, bedding, lamps, etc), clothes, mattresses, and asphalt.

The Paper Recycling Program was “reinstated” in 2007. Highlights include:

- a. Virginia Tech Recycling (VTR) authorized three FTEs specifically for recycling.
- b. VTR received funding for salaries and operating requirements.
- c. VTR purchased a new dedicated recycling collection truck.
- d. VTR purchased and delivered 1500 paper bins/800 commingled beverage container bins/accessory bins, carts, bags, and equipment.
- e. Program execution began in late November 2007 and was completed by the end of March 2008. All eight colleges/associated academic & administrative buildings are equipped with new containers, and the collection schedules have been established and implemented.

Virginia Tech is the land grant university for the Commonwealth and has an outstanding and nationally recognized College of Agriculture and Life Sciences. Our farms use organic fertilizer which consists of a mixture of animal waste and local composting material.

CURRENT PROJECTS:

Food-waste/organics composting, start-up phase, in cooperation with Culinary Services and Grounds Department (dependent on permit process, contract negotiation w/commercial composting facility PME, LLC)

Expansion to Mixed Paper recycling (in cooperation with Montgomery Regional Solid Waste Jurisdiction and member jurisdictions)

Cooperation with /operational support for the student group Environmental Coalition and possible expansion of paper recycling to Residence Halls

Cooperation with /operational support for the partnership program with the YMCA called Y-Toss? which collects useable discards from Student Move-Out. The goals of this very successful program area:

- a. Reduce waste on campus
- b. Keep reusable items being discarded by students out of the local landfills
- c. Increase campus and community sustainability efforts and awareness
- d. Enhance the sustainability partnership with Virginia Tech, the Town of Blacksburg, the local community and organizations.

VTR, in the course of establishing campus recycling, transformed and mechanized solid waste collection; established orderly collection of trash/recycling during Student Move Out and Move In; formalized trash collection and initiated recycling from VT home football games; developed involved working relationships with administrative entities across campus; and developed timely, "customer-specific" protocols for solid waste/recycling collection services .

Virginia Tech Recycling website: www.recycle.vt.edu

6) Has your university created sustainability initiatives in administration or policy development that are not mentioned above?

For example: adopting a campus environmental or sustainability policy, implementing a green purchasing policy, maintaining an active sustainability advisory committee, funding an office or a center for campus sustainability, offering a website on campus sustainability.

Virginia Tech has adopted a Campus Energy and Water Policy. The Committee for Energy and Sustainability acts in an advisory capacity to the administration and is composed of students, faculty, and staff. President Charles W. Steger recently charged the Committee with developing a campus sustainability plan by the end of the 2009 spring semester aimed at reducing global warming emissions in campus operations. Some "green" items are purchased including 100 percent recycled content toilet paper, 100 percent recycled content roll towels, and 60 percent recycled content black trashcan liners. The Office of Energy and Sustainability website describes the sustainability initiatives at Virginia Tech.

The university has established the Energy and Sustainability Committee with the mission of reviewing and providing advice to university administration on broad policy issues relating to energy consumption and conservation. The Energy and Sustainability Committee is a part of the university system of shared governance which included faculty, staff, and students. The Energy and Sustainability Committee serves as the active sustainability advisory committee. It reports to the Commission on University Support which reports to the University Council. The President, Provost, all administrative Vice Presidents and Academic Deans are members of the University Council.

On April 25, 2008, President Charles W. Steger charged the Energy and Sustainability Committee to develop a draft Sustainability Plan for the university and the Virginia Tech Climate Action Commitment. His goal is to have the initial drafts submitted to him and the Commission on University Support by the end of the 2008 Fall Semester, and to have University Council approval by the end of the 2009 Spring Semester. A Virginia Tech Climate Action Commitment (VTCAC) Subcommittee was established at the end of the 2007 Spring Semester to lead this effort.

A green purchasing policy will be one of the areas included in our draft Sustainability Plan. A separate working group of the VTCAC Subcommittee has been established and has the lead for this portion of the plan. The university is purchasing Energy-Star rated computers and office machines (copiers and faxes) which is the industry standard.

A separate subcommittee of the Energy and Sustainability Committee completed the revision of Policy 5505 Campus Energy and Water during the 2007 Spring Semester. Final review and submission to the Vice President for Administrative Services will be done at the beginning of the 2008 Fall Semester.

The university deans and the Office of the Vice President for Research created the Deans' Task Force on Energy, Security, and Sustainability which seeks to coordinate, promote, and position Virginia Tech's education, research, and outreach efforts to achieve sustainable and secure energy systems. The task force plays a key role in implementing the university's strategic plan which is focused on the discovery mission.

The strategic plan has identified Energy, Materials, and the Environment as one of the four broad areas of discovery. <http://www.research.vt.edu/energy/index.html>

The Office of Energy and Sustainability website : <http://www.facilities.vt.edu/sustainability>

To promote sustainability awareness and education, and to support positive actions with practical results, Virginia Tech, the Town of Blacksburg, and the local citizens group, Sustainable Blacksburg, formed a "green partnership" and sponsored Sustainability Week 2007. This first, week-long event, which was held in late October, included over 30 activities, speakers, and tours. We have attached a brief Executive Summary for your information.

7) In what ways is your university encouraging student involvement in campus sustainability efforts?

For example: integrating sustainability education into new student orientation, providing on-campus internship or work-study opportunities related to sustainability (such as eco-reps programs), working with or fostering new student organizations devoted to sustainability issues, helping plan or sponsor sustainability related competitions between dorms or other groups.

There is a plethora of student groups at Virginia Tech concerned with sustainability. There are currently 14 student organizations in the "Coalition for Campus Sustainability (CCS)" which was

launched during the 2008 Spring Semester and is facilitated by the "Environmental Coalition (EC)" student organization. These coalition partners range in purpose from recreational (Recreational Society), to women's rights (Womenspace), to politically active (The Political Science Club), to sustainable design (Emerging Green Builders) and many others - all committed to building a sustainable campus. The GREEN Team has been integral for spreading sustainability awareness on campus. Both the Energy and Sustainability Committee and the Recycling Program employ student interns. The university has participated in RecycleMania the past two years. A sustainability sheet will be provided to all students during "Student Move In" in August 2008. The sheet will provide guidance on how to live a more sustainable life on campus.

Virginia Tech graduate and undergraduate students serve as members at all levels of our university governance system. The Energy and Sustainability Committee has a total of 4 student members-two graduate students and two undergraduate students. This committee reports to the Commission on University Support which has one graduate student and one undergraduate student representative. The commission reports to the University Council which has several graduate and undergraduate representatives. See www.governance.vt.edu/

Students participated extensively during Sustainability Week 2007. Referring to question 3 above, 50 of our students participated in the Energy Usage and Greenhouse Gas (GHG) Inventory as a part of their academic program.

Students played a key role in the planning and execution of Sustainability Week 2007. Following the Kick-Off Ceremony, Professor John Randolph provided an overview of the Energy Usage and Greenhouse Gas (GHG) Inventory his students conducted, and then a select number of students gave a presentation on a portion of the inventory they were responsible for.

For Sustainability Week 2007, one Graduate Student Assistant recommended having an "Ideas Competition" to solicit practical sustainability suggestions to be used on campus on in the Town of Blacksburg. The student planned the entire program which included awarding prizes to the top three ideas for each of the two categories. All ideas submitted were presented to university and town officials for review and consideration. Several ideas have been adopted.

Student leaders from the Environmental Coalition met with President Charles W. Steger to thank him for making sustainability a priority on campus and to propose the signing of the generic Presidents Climate Commitment. This meeting contributed to President Steger's decision to create a unique Virginia Tech Climate Action Commitment.

Students participated in RecycleMania 2008, and the Y-Toss partnership with the local YMCA.

Our student group Environmental Coalition hosted "Focus the Nation," a one-day "teach-in" for global warming solutions for America, on January 31, 2008.

Our student group Environmental Coalition worked with nearly 15 other campus student organizations to plan and host "Earth Week 2008" during the period April 21-25.

The VT GREEN Team, Virginia Tech Recycling environmental awareness and sustainability education team, has a paid student position as the team coordinator. The 30 team members are trained and facilitate 30 minute interactive programs on the "bigger picture" of how humans and our planet interact. The first section discusses our planetary situation, our human actions, and the impacts that those actions have on our planet, while the second section is about what individuals and society as a collective whole can do to reduce those impacts. The GREEN Team (GT) is working with Residence Life and the Residence Hall Federation (RHF) to have educational programs for all Resident Advisers and RHF officers, as well as making "Green Living Guides" available to all students. All of the Residence Advisors are also encouraged to hold a GREEN Team program for their residents this academic year. This partnership is to ensure that all leadership for on campus residents are educated on what the issues are and what they and their residents can do to be a part of this campus sustainability effort. The GT will also be working with Residence Life and RHF this fall on a "RecycleMania Planning Committee" to create a comprehensive dorm vs. dorm recycling competition during the 10-week national competition period. Lastly, the GT is partnered with Hokie F-6 to hold a "Sustainable Picnic" for all incoming freshman this September. See www.recycle.vt.edu/greenteam

The EC and the CCS partners have been working closely with the Energy and Sustainability Coordinator, as well as other University departments, in the majority of their campus sustainability efforts. The EC has also been working with Dining Services and Residence Life to have reminder stickers placed on all of the light switches and paper towel dispensers on campus to remind students to turn off their lights when they are not in use, as well as to only use the towels that they need. The EC also worked with Dining Services on their food waste study that resulted in the D2 dining facility to go trayless.

There has even been a great deal of communication and support with the EC and CCS in the planning process for the first ever Virginia Power Shift 2008 conference that will be held on the campus of Virginia Tech this coming October.

The "Venture Outdoors Club" is recognized as an eco-reps program.

8) Other activities. Answers to these additional items are for information purposes only and will not be included in the evaluation process. Please provide a YES or NO response to each of the following items.

- **Environmental student organization:** YES (Examples listed below)

- a. Coalition for Campus Sustainability
- b. Environmental Coalition
- c. The Green Team

- **Green dorm or house:** NO (However, the renovation of the Ambler Johnston Residence Hall is being designed to a LEED Silver level, and our intent is to seek LEED Silver Certification).

- **Outing club:** YES (Examples listed below)
 - a. “Venture Out” Earth Sustainability Series
 - b. “SEEDS-Seek Education, Explore, Discover” www.seedsguys.org
- **Participation in RecycleMania:** YES (See April 28, 2008, letter from John F. Cross, Chief of the Municipal Waste Reduction Branch, Office of Solid Waste, US Environmental Protection Agency)
- **Student trustee position:** YES (We have one graduate student representative and one undergraduate student representative assigned to the Board of Trustees)
- **Sustainability student jobs and/or eco-reps:** YES (Undergraduate Student Planning Intern, Graduate Student Assistantship assigned to the Sustainability Week 2007 Planning Committee, Virginia Tech Recycling Interns, Food Service Interns)
- **Revolving loan fund for sustainability projects:** NO (However, loans have been provided for energy initiatives on a case-by-case basis)
- **Environmental science/studies major:** YES. In addition to professional programs in forestry, fisheries and wildlife, landscape architecture, and the natural sciences, prominent environmental majors include:
 - a. Environmental Science (Department of Crop and Soil Environmental Science, College of Agriculture and Life Sciences, www.ensc.vt.edu)
 - b. Environmental Policy and Planning (Urban Affairs and Planning Program, College of Architecture and Urban Studies, www.uap.vt.edu)
 - c. Environmental Engineering (Department of Civil and Environmental Engineering, College of Engineering)
 - d. Humanities, Science, and Environment (Department of Science, Technology & Society, College of Liberal Arts and Human Sciences)
- **Environmental/ science/studies minor or concentration:** YES. We have minors in the programs listed above, as well as the following:
 - a. Green Engineering Program www.eng.vt.edu/green/
 - b. Earth Sustainability Series 4 Semester Course www.uccs.ceut.vt.edu/
 - c. University-wide minor in Watershed Management
 - d. “Sustainability Energy Solutions in a Global Society-ESM/ME 4984” (Interdisciplinary Studies, College of Liberal Arts and Human Sciences)
 - e. Several departments in the College of Natural Resources offer courses in environmental science (Fisheries and Wildlife Science, Forestry, Geography, Wood Science, and Natural Resources)
- Graduate level environmental program:** YES. In addition to professional graduate programs in natural resources and natural sciences, prominent graduate environmental program include:

- a. Masters and Ph.D. in Environmental Science (Department of Crop and Soil Environmental Science, College of Agriculture and Life Sciences, www.ensc.vt.edu/)
- b. Masters in Urban & Regional Planning, Environmental Planning Concentration (Urban Affairs and Planning Program, College of Architecture and Urban Studies, www.uap.vt.edu)
- c. Masters and Ph.D. in Environmental Engineering (Department of Civil and Environmental Engineering, College of Engineering)

- Merit and/or need-based environmental/sustainability scholarships: NO

Sources for question 1:

<http://www.facilities.vt.edu/sustainability/facilities.asp?value=crcdc#proactive>
http://www.cdcd.vt.edu/Standards_Codes/VT_Std/Design_Guidelines.pdf
http://www.facilities.vt.edu/documents/ec_minutes_200804.pdf
Response to Sustainability Policy Survey 2008

Sources for question 2:

<http://www.facilities.vt.edu/ot/fleet/>
<http://www.vtnews.vt.edu/story.php?relyear=2007&itemno=233>
Response to Sustainability Policy Survey 2008
<http://www.facilities.vt.edu/ot/alternative/#bbw>
<http://www.facilities.vt.edu/ot/alternative/bike.asp>

Sources for question 3:

<http://www.vtnews.vt.edu/story.php?relyear=2008&itemno=374>
<http://facilities.vt.edu/sustainability/>
http://www.facilities.vt.edu/documents/ec_minutes_200804.pdf

Sources for question 4:

<http://www.facilities.vt.edu/sustainability/>

Sources for question 5:

http://facilities.vt.edu/physicalplant/depts.asp?value=recyc_stats
Response to Sustainability Policy Survey 2008

Sources for question 6:

<http://www.policies.vt.edu/5505.pdf>
<http://www.vtnews.vt.edu/story.php?relyear=2008&itemno=374>
<http://www.research.vt.edu/energy/index.html>

Sources for question 7:

http://www.facilities.vt.edu/documents/ec_minutes_200804.pdf
<http://www.theecvt.com/>
<http://www.recycle.vt.edu/greenteam/>
<http://www.recycle.vt.edu/php/rmresults.php>