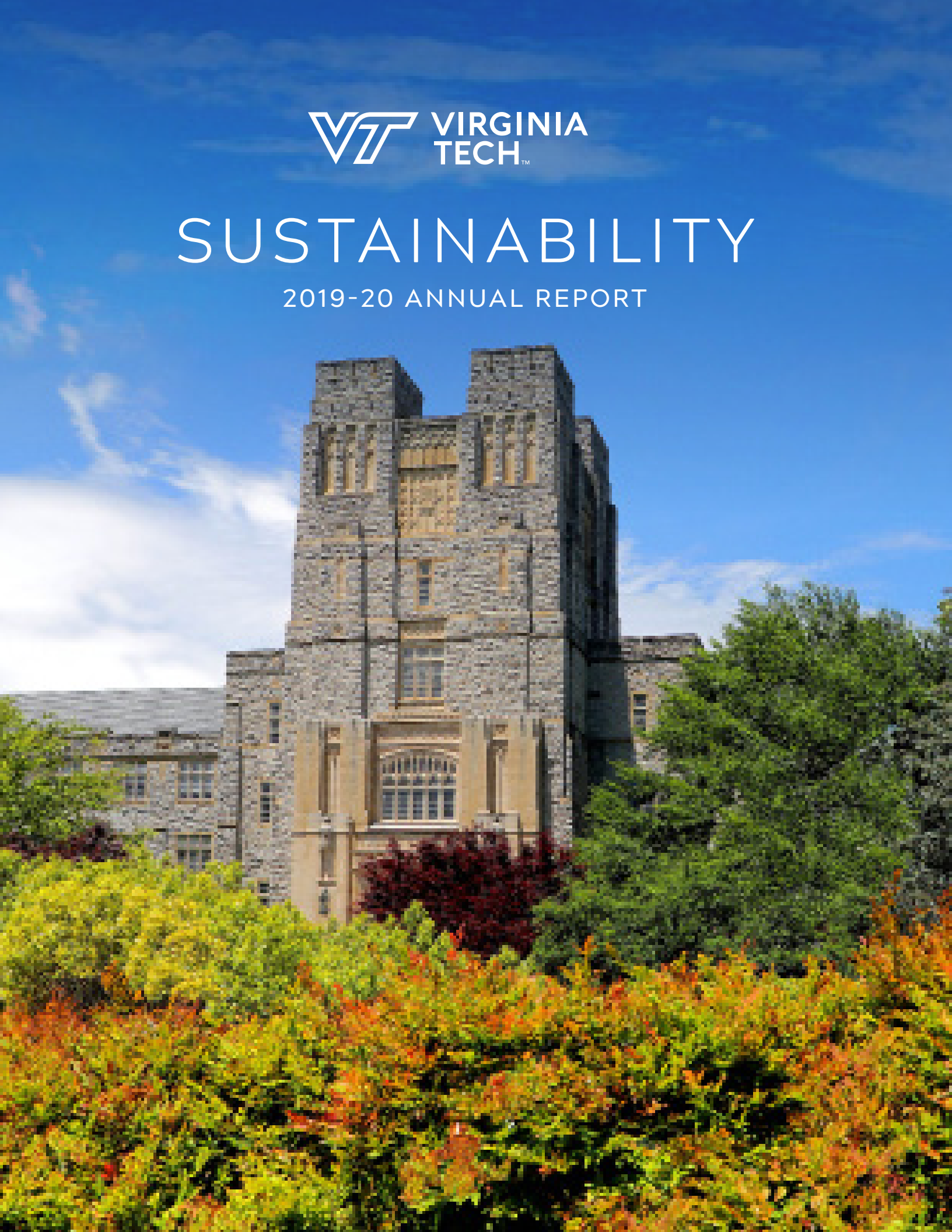
VIRGINIA TECH™

SUSTAINABILITY

2019-20 ANNUAL REPORT



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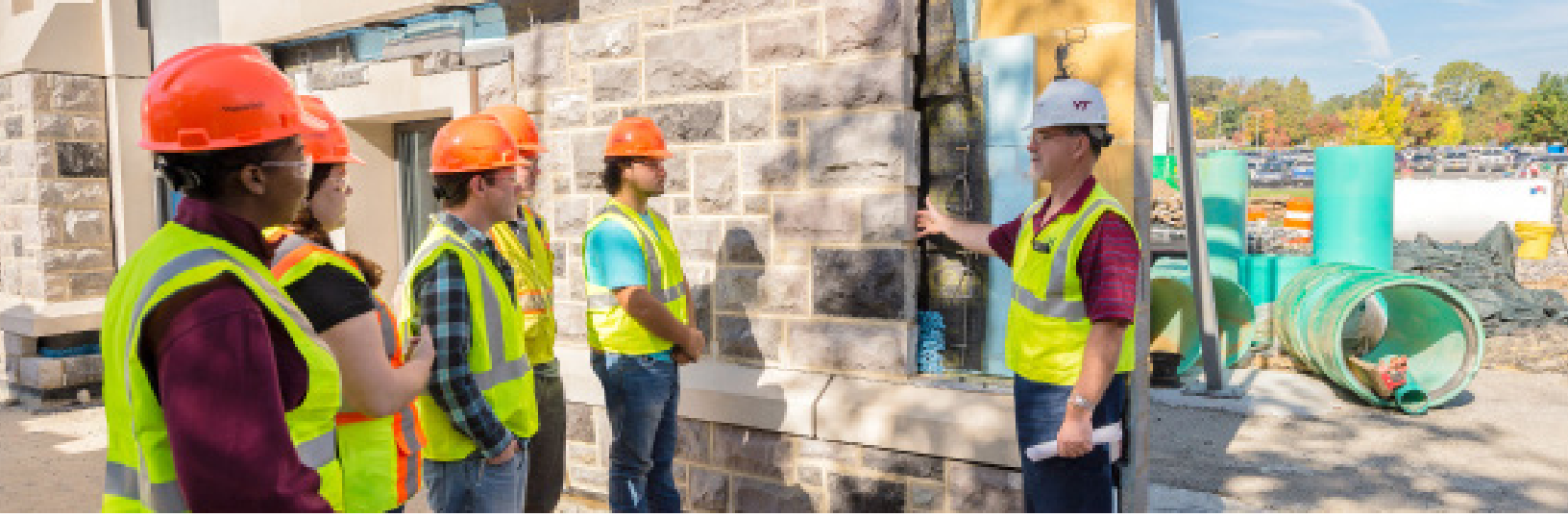


EXECUTIVE SUMMARY

For the past 11 years Virginia Tech has made considerable progress in implementing its 2009 Climate Action Commitment and Sustainability Plan. The 2009 Virginia Tech Climate Action Commitment was unanimously approved by the Virginia Tech Board of Visitors on June 1, 2009, and it was a cutting-edge effort for its time. On May 9, 2013, the University Council approved Revision 1 which made adjustments based on four years of implementation.

Today, Virginia Tech is a recognized leader in campus sustainability with a Sustainability Tracking and Rating System (STARS) Gold score that is highest among Virginia and ACC peer institutions. Virginia Tech has won numerous awards and recognitions since 2010, including Princeton Review's top 50 Green Colleges (#12 in 2019); the Governor's Environmental Excellence Award (seven times); Best Workplaces for Commuters (every year; Gold in 2019-20); Bicycle Friendly Campus (every year; Silver in 2019); Tree Campus USA certification (every year); and many others.

The university has reduced greenhouse gas (GHG) emissions by 24 percent from 2006-19, despite 22 percent growth in campus building size and enrollment. This reduction is faster than the 2009 Climate Action Commitment target trajectory. It resulted from investments in energy efficiency in existing and new buildings, and most importantly from replacing steam plant coal with natural gas enabled by a new gas pipeline. Virginia Tech now has 36 LEED-certified buildings constructed or in progress, amounting to 30 percent of campus space, and from 2015-20, Virginia Tech invested $14 million in energy efficiency improvements resulting in energy and dollar savings with a 5-year payback.

Virginia Tech has done much to develop alternative transportation choices, from bike racks and dual use trails; to bike share, rideshare, car share programs; to increased ridership on partner Blacksburg Transit; to innovative plans to boost campus mobility. For Calendar Year 2019, Virginia Tech achieved an 80 percent waste diversion rate (waste diverted from landfill) and a 40 percent recycling rate. In April 2020, the Procurement Department unveiled a Sustainable Procurement Policy, and in May, the Division of Campus Planning, Infrastructure, and Facilities produced new Design and Construction Building Standards, both of which reflect the ideals of the Climate Action Commitment.

There is an enviable array of sustainability-related academic programs, majors, coursework, and research in green engineering, natural resources, energy systems, environmental policy, and many others. In the STARS rating system, Virginia Tech scores 89 percent of possible points in academic categories. It also scores 95 percent of possible points in campus engagement. Virginia Tech has a rich campus life for students with a wide array of opportunities, including strong environmental student organizations. Indeed, these student groups have pushed the university to move forward on climate action.

The Division of Campus Planning, Infrastructure, and Facilities has embraced sustainability and climate action as part of its mission. The university has a one-of-a-kind Virginia Tech Electric Service (VTES), a university-owned independent utility that serves not only campus, but also 6,000 Blacksburg customers.

The Virginia Tech 2019-20 Sustainability Annual Report begins with a broad overview of the university's sustainability program, presents the 14 points contained in the 2013 Virginia Tech Climate Action Commitment, and showcases sustainability highlights for each point.

In late 2019 – prompted by the demands of students and other community members involved in Climate Strikes and resolutions from the Faculty and Staff Senates, Student Government Association, and Graduate Student Assembly – President Tim Sands and Senior Vice President and Chief Business Officer Dwayne Pinkney established a Climate Action Commitment Working Group comprised of 26 faculty, students, staff, and community members. They selected Professor Emeritus John Randolph to serve as chair of the Working Group and he was ideal for this role having spearheaded the 2009/2013 Climate Action Commitment.

In announcing the creation of the Working Group, President Sands stated, "Climate change presents one of the world's most pressing problems...and Virginia Tech has a duty to respond." The Working Group was charged to assess the university's progress in implementing the 2009/2013 Climate Action Commitment, compare Virginia Tech's experience to peer institutions, and develop a new commitment. While the university has made tremendous strides with advancing sustainability on campus, a decade later it fails to prescribe what climate scientists recognize as necessary actions and also falls short of many peer universities' recent initiatives.

From January to June 2020, the Virginia Tech Climate Action Commitment Working Group executed its charge to evaluate the university's current position and future role in addressing climate change. During this same period, the global pandemic COVID-19 brought unprecedented hardship and suffering, particularly for the most vulnerable. Nevertheless, this unique time is engendering a tremendous spirit of innovation and collaboration. Around the world, people are coming together to address historic challenges, becoming bolder and more creative. Every aspect of our livelihoods is being reimagined.

In order to engage a broad range of expertise and perspectives from across the university and wider community and conduct an ambitious work program, the Climate Action Commitment Working Group established 12 subcommittees to include a total of 130 faculty, students, community members, and staff to investigate and discuss specific issues relevant to the commitment. Most of the subcommittees met weekly from early February through the end of May. The subcommittees included:

- Agriculture, Forestry, and Land Use
- Budget and Finance
- Buildings Opportunities
- Climate Justice
- Community Engagement
- Energy Opportunities
- Greenhouse Gas (GHG) Inventory
- Peer Institutions Comparison
- Renewables Opportunities
- Structuring Sustainable Choices
- Transportation Opportunities
- Waste-Recycling-Composting and Procurement

The Working Group developed several mechanisms to expand community involvement in the process, including a website and email address for comment and two online surveys. Plans for face-to-face town hall meetings and conference sessions had to be reimagined when the university shut down after spring break. In place of the in-person events, the Working Group hosted 12 Zoom Convening sessions in April, attended by over 220 participants who provided excellent feedback. In anticipation of the Convening sessions, the Working Group and its subcommittees also developed ten creative videos that described the new Climate Action Commitment proposals.

The Working Group focused on developing effective strategies the university can advance to achieve meaningful climate action. Throughout the multitude of Working Group, subcommittee, and community Zoom meetings, discussions reflected on the important opportunity for Virginia Tech to reinvent itself, not only in its commitment to climate action, but also in its responsiveness to the needs of the world around us, in the spirit of Virginia Tech's motto, *Ut Prosim - That I May Serve*.

The Working Group developed the draft Virginia Tech 2020 Climate Action Commitment recommending a new vision and mission statement, 15 goals, and potential pathways to achieve those goals. Their recommendations are bold, aggressive, and comprehensive. Its goals range from necessary upgrades to the campus physical plant to reduce GHG emissions, to integrating those improvements into the educational mission through a Climate Action Living Laboratory, to engaging everyone in creating a culture of sustainability - all to position Virginia Tech as a leader as the clean energy economy evolves in the Commonwealth and the world.

On July 15, 2020, the Virginia Tech 2020 Climate Action Commitment Working Group Final Report - 2020 was successfully presented by Professor Emeritus John Randolph to Senior Vice President and Chief Business Officer Dr. Dwayne Pinkney. The recommendation was placed in resolution format. The Commission on University Support Resolution 2020-21A, Resolution to Approve the Virginia Tech 2020 Climate Action Commitment is currently under review by university governance for presentation (and approval) to the Virginia Tech Board of Visitors in November 2020.

OVERVIEW

Introduction

Virginia Tech's Climate Action Commitment defines sustainability as the simultaneous pursuit of environmental quality, economic prosperity, and social justice and equity, through action, education, and engagement to address current needs without compromising the capacity and needs of future generations.

Virginia Tech's sustainability vision is to serve as a model community for a sustainable society. Sustainability is an integral part of the fabric of the university as it pursues enhanced economic stability and affordability, diversity and inclusion, environmental stewardship, expansion of knowledge, and education of future leaders. The university's strategic plan includes references to these expectations and efforts. The pursuit of sustainability is achieved through Virginia Tech's administration; physical environment and operations; student life and experience; campus culture and behavior; and academic learning, discovery, and engagement.

Virginia Tech is a member of the Association for the Advancement of Sustainability in Higher Education (AASHE). AASHE is an association of colleges and universities that are working to create a sustainable future. AASHE's mission is to empower higher education to lead the sustainability transformation. It provides resources, professional development, and a network of support to enable institutions of higher education to model and advance sustainability in everything they do, from governance and operations to education and research.

Virginia Tech is also a member of the Virginia Association for the Advancement of Sustainability in Higher Education (VASHE). VASHE is a consortium of colleges and universities that work collaboratively to advance sustainability within the Commonwealth of Virginia, and its mission is similar and compliments AASHE.

Energy and Sustainability Committee

The university established the Energy and Sustainability Committee on April 30, 2007. It is one of 16 committees within the university governance system. The Energy and Sustainability Committee's charge is "To review and provide advice to the University Administration on broad policy issues relating to the university's pursuit of environmental quality through action, education, and engagement to address current needs without compromising the capacity and needs of future generations."

The Energy and Sustainability Committee has 20 members and includes faculty, staff, and student representation. It is unique in that it is the only committee in the university governance system that has four student representatives (two graduate students and two undergraduate students). The other committees have a total of two student representatives. Please refer to governance.vt.edu/assets/esc-roster.pdf for more information.

The Energy and Sustainability Committee reports to the Commission on University Support who reports to the University Council. Refer to governance.vt.edu/ccc.html to learn more.

Virginia Tech Climate Action Commitment

During Earth Week in April 2008, former university President Charles W. Steger charged the Energy and Sustainability Committee to develop a climate commitment and accompanying sustainability plan that was unique to Virginia Tech, and to have the commitment placed in resolution format for review and action by the University Council in the 2009 spring semester. The Energy and Sustainability Committee developed the draft Virginia Tech Climate Action Commitment and Sustainability Plan (Climate Action Commitment and Sustainability Plan) and spearheaded the review process.

On April 22, 2009 (Earth Day) the University Council voted to recommend approval of the Virginia Tech Climate Action Commitment and accepted the accompanying Sustainability Plan. On June 1, 2009, at their regularly scheduled meeting, the Virginia Tech Board of Visitors unanimously approved the Virginia Tech Climate Action Commitment and it became Presidential Policy Memorandum 262. Containing 14 points, the commitment includes sustainability goals, objectives, and aspirations. In academic year 2012-13, the Energy and Sustainability Committee revised the commitment and added a Sustainability Definition, Vision, and Mission. On May 6, 2013, the University Council approved the revision. Visit facilities.vt.edu/content/dam/facilities_vt_edu/sustainability/climate-action-commitment.pdf to view the Climate Action Commitment.

As discussed in the Executive Summary, the Climate Action Commitment revision process is currently underway. Further discussions on this topic can be found in Point 10 and in the section titled "Virginia Tech 2020 Climate Action Commitment Working Group."

Sustainability Plan

Virginia Tech has adopted the Association for the Advancement of Sustainability in Higher Education's (AASHE) Sustainability Tracking, Assessment and Rating System (STARS) protocol as the foundation of the Sustainability Plan. The STARS protocol consists of over 60 topical areas (called credits) that are placed in one of four categories: Academics, Engagement, Operations, and Planning and Administration. Additional credit is earned for unique initiatives implemented that are not covered in STARS. Data and information submitted is measured against a national standard. Points are earned for each credit. Total points (score) yields an overall rating, Platinum, Gold, Silver, or Bronze.

Virginia Tech has received 4 STARS ratings (2011: Silver; 2013: Silver; 2014: Gold; and 2017: Gold). For the 2017 Gold rating, Virginia Tech earned 71.94 points which at that time represented the highest achieved for any college or university in the Commonwealth of Virginia, and the highest achieved by peer institutions in the Atlantic Coast Conference. The STARS Gold Rating is good for three years and the Office of Sustainability is currently preparing their 2020 submission. Virginia Tech's STARS report is publicly available on the STARS website at stars.aashe.org/institutions/virginia-tech-va/report/2017-12-19.

Office of Sustainability

On June 1, 2009, following the approval of the Virginia Tech Climate Action Commitment by the Virginia Tech Board of Visitors, the university established the Office of Sustainability. Recognized as the university clearing house for sustainability matters, the Office of Sustainability has the following duties and responsibilities:

a. Coordinate programs for campus sustainability;
b. Oversee the implementation of the Climate Action Commitment and Sustainability Plan;
c. Monitor annual electricity and other energy use and GHG emissions;
d. Manage a campus-wide student internship and undergraduate research program using the campus as a sustainability laboratory; and
e. Coordinate communication regarding campus sustainability initiatives and programs to the university community and external audiences.

Office of Sustainability Partners

UNIVERSITY COLLEGES, DEPARTMENTS, AND UNITS

The Office of Sustainability collaborates with faculty and staff in virtually all of the colleges at Virginia Tech to include College of Agriculture and Life Sciences, College of Architecture and Urban Studies, College of Business, College of Engineering, College of Liberal Arts and Human Sciences, College of Natural Resources and Environment, College of Science, and the Virginia-Maryland College of Veterinary Medicine.

STUDENT GROUPS

The Office of Sustainability works with many student groups to include the Student Government Association, Residence Hall Federation, Environmental Coalition, Environmental Student Organization, Food Justice at Virginia Tech, Galileo Living Learning Community, Hypatia Living Learning Community, Society of Renewable Resources, Stroubles Creek Restoration Initiative, Student Chapter of the American Water Resources Association, Students for Sustainable Practice, Sustainable Food Corps, Campus Kitchen at Virginia Tech, and The Green Program - Study Abroad at Virginia Tech.

COMMUNITY GROUPS

The Office of Sustainability collaborates often with the Town of Blacksburg, the local citizens group Sustainable Blacksburg, and the Blacksburg Farmers Market.

2019-2020 SUSTAINABILITY PROGRESS

POINT 1: Leader in Campus Sustainability

"Virginia Tech will be a Leader in Campus Sustainability. Sustainability is an integral part of the fabric of the university as it pursues enhanced economic stability and affordability, diversity and inclusion, environmental stewardship, expansion of knowledge, and education of future leaders."

Awards and Recognition

Virginia Tech has consistently demonstrated its commitment to being a leader in campus sustainability and has received awards and recognition at both the state and national levels.

SOLAR DECATHLON AWARDS

Two Virginia Tech teams won awards at the U.S. Department of Energy Solar Decathlon Design Challenge. The challenge requires teams to design highly energy efficient buildings that are powered by renewable energy. They often represent the pinnacle of environmentally responsible design and could be eligible to achieve LEED Platinum certification. For more information visit: vtnews.vt.edu/articles/2020/06/solar-decathlon-team-awards.

2020

IN THE TOP 5 UNIVERSITIES WITH THE BEST CAMPUS FOOD
The Travel

#2 BEST CAMPUS FOOD
Niche

#5 BEST CAMPUS FOOD
"Best of 384 Colleges: 2019 Edition," The Princeton Review

GOLD ADDY® AWARD FOR SHIKI FOOD PHOTOGRAPHY
Western Virginia American Advertising Awards

GOLD ADDY® AWARD FOR SHIKI SPECIAL EVENT MENU
Western Virginia American Advertising Awards

SILVER ADDY® AWARD FOR CHILI CHALLENGE VIDEO SERIES
Western Virginia American Advertising Awards

VIRGINIA TECH DINING SERVICES AWARDS

Dining Services boasts a tradition of award-winning programming, venues, and service. Dining Services is committed to being the leader of college and university food service and a leader in sustainability and has received numerous awards for their efforts. Learn more at dining.vt.edu/about/awards_honors

2019

#1 BEST CAMPUS FOOD
Niche

#1 SALES VOLUME COLLEGE AND UNIVERSITY
Freshens

#2 JERK CHICKEN WINGS
Tyson Foods' College and University Wings Contest

#3 BEST CAMPUS FOOD
The Princeton Review

#3 PHOTO ESSAY "PLANT FORWARD"
University Photographers' Association of America

#3 PERSONAL VISION "CREAM AND SUGAR"
University Photographers' Association of America

#4 COLLEGE POWER PLAYERS
Food Management

IN THE TOP 15 COLLEGE DINING HALLS IN AMERICA
According to Students, Business Insider

SILVER
ADDY® AWARD FOR DEET'S PLACE COMPOSTABLE CUPS
Western Virginia American Advertising Awards

SILVER
ADDY® AWARD FOR PLANT FORWARD FOOD PHOTOGRAPHY
Western Virginia American Advertising Awards

WINNER OF MENU MADNESS TOURNAMENT
Food Management

BEST COLLEGE FOOD TRUCK OF THE YEAR
Mobile Cuisine

BEST SANDWICHES WITH GLOBAL FLAVORS
Food Management

PRINCETON REVIEW GUIDE TO GREEN COLLEGES, 2019 EDITION

The Guide to Green Colleges 2019 Edition profiles colleges with the most exceptional commitments to sustainability based on their academics and career preparation for students, campus policies, initiatives, and activities. The Guide uses the STARS protocol. Virginia Tech has been selected every year since 2008 and was most recently ranked #12 in the top 50 Green Colleges, earning a rating of 97 out of a possible 99 points. This is the 10th consecutive year Virginia Tech has received a Green College recognition.

TREE CAMPUS HIGHER EDUCATION
An Arbor Day Foundation Program

2020 TREE CAMPUS USA REACCREDITATION

For the 12th consecutive year, Virginia Tech has been recognized for its best practices in campus community forestry through the Arbor Day Foundation's Tree Campus USA program. Launched in 2008, Tree Campus USA is a national program that honors colleges and universities for effective campus forest management and for engaging students, faculty, and staff in conservation goals. Virginia Tech achieved Tree Campus USA recognition by meeting five national standards, which include maintaining a tree advisory committee, operating a campus tree-care plan, dedicating annual expenditures toward trees, organizing an Arbor Day observance, and executing student service-learning projects. More than 700 trees have been planted across campus since 2008. Trees are among the most visible representations of Virginia Tech's commitment to environmental stewardship, as demonstrated by two recent projects.

Virginia Tech has made its urban forest canopy a priority and hired the first university arborist in 2019. Development of an urban forest master plan has begun and this plan will institute management of the more than 10,000 trees on Virginia Tech's core campus. This new program will optimize the environmental benefits provided by campus trees and provide wildlife habitat in an urban area where habitat is often scarce.

SIERRA CLUB COOL SCHOOLS FOR 2020

The Sierra Club's Cool Schools for 2020 ranked Virginia Tech No. 74 out of a total list of 312 select institutions. Cool Schools uses data and information from the most recent STARS rating for its publication.

SIERRA CLUB

VIRGINIA TECH ALTERNATIVE TRANSPORTATION AWARDS

The Alternative Transportation Department seeks to meet all the travel needs of students, faculty, and staff in healthy and environmentally friendly ways.

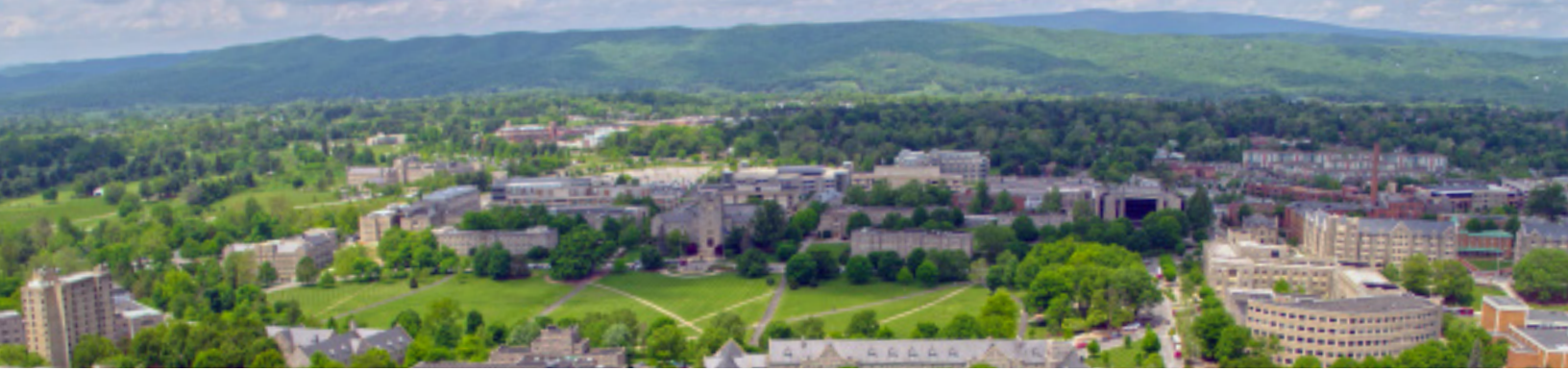
- Blacksburg Transit was named the 2019 Outstanding Transit System for North America by the American Public Transportation Association in 2019. Learn more at vtnews.vt.edu/articles/2019/07/ops-BTAward.
- Virginia Tech was awarded a Silver ranking as a Bicycle Friendly University by the League of American Bicyclists for the period of 2019-2023. This is an improvement from our previous Bronze rating. Virginia Tech has been recognized as a Bicycle Friendly University since 2013. Learn more at vtnews.vt.edu/articles/2019/10/ops-bikefriendlyu.

BICYCLE FRIENDLY UNIVERSITY 2019-2023 SILVER THE LEAGUE OF AMERICAN BICYCLISTS

BEST Universities for Commuters℠ 2020

APTA

- Virginia Tech has been named one of the 2020 Best Workplaces for Commuters. View the story at vtnews.vt.edu/articles/2020/01/ops-commuterworkplace.
- Excellence in Planning for an Existing Campus: In August 2019, Virginia Tech and consulting partner Sasaki were honored with the Society for College and University Planning Excellence in Planning for an Existing Campus Merit Award for the Virginia Tech 2018 Campus Master Plan. More information on the award and Beyond Boundaries 2047: The Campus Plan can be found at vtnews.vt.edu/articles/2019/08/ops-masterplanaward.



Point 2: Virginia Tech Climate Action Commitment and Sustainability Plan represented in the Strategic Plan

"Virginia Tech will represent the Virginia Tech Climate Action Commitment and Sustainability Plan in the university's Strategic Plan."

The new Virginia Tech Strategic Plan, the Virginia Tech Difference: Advancing Beyond Boundaries was approved by the Virginia Tech Board of Visitors on June 2, 2019. The Strategic Plan can be viewed at strategicaffairs.vt.edu/StrategicPlanning/the-vt-difference-advancing-beyond-boundaries.

STRATEGIC PRIORITY 4 (ENSURE INSTITUTIONAL EXCELLENCE) HIGHLIGHTS THE VIRGINIA TECH CLIMATE ACTION COMMITMENT BY STATING THE FOLLOWING:

"Approved by the Board of Visitors on June 1, 2009, the Virginia Tech Climate Action Commitment envisions Virginia Tech as a model community for a sustainable society. The Virginia Tech Climate Action Commitment affirms that Virginia Tech will be a leader in campus sustainability and outlines several goals and milestones for improving sustainability. Areas of focus include reducing emissions, improving the sustainability of the built environment, minimizing waste, and improving electricity, heating, and transportation efficiency. Virginia Tech engages and involves the university community in these efforts through multiple activities including the development and implementation of sustainability-related academic programs and innovative strategies for efficient and sustainable use of energy, water, and materials in all university-owned facilities."

Beyond Boundaries 2047: The Campus Plan, approved by the Virginia Tech Board of Visitors in November 2018, integrates the facilities and infrastructure required to support Virginia Tech's new strategic plan. It includes a network of amenities and services designed to improve the student experience; an integrated approach to accessibility and mobility; and a series of mixed-use districts featuring new cross-disciplinary academic, research, and partnership facilities. The plan reinforces the academic, research, and outreach mission across Virginia Tech's three campuses and numerous agricultural stations. **In doing so, it responds to five overarching goals:** (1) enhance learning and research environments; (2) expand strategic partnerships; (3) protect the land grant legacy; (4) facilitate accessibility and mobility; and (5) foster an inclusive campus experience. Beyond Boundaries 2047 can be viewed at bit.ly/VTBeyondBoundaries2047.

SUSTAINABILITY OUTCOMES ARE FEATURED ON PAGES 322-31. THE INTENT IS TO:

- Minimize consumption of natural land, and reduce vehicular emissions, via a land use strategy focusing on infill development rather than sprawl (including a growth boundary established by the proposed Western Perimeter Road);
- Reduce vehicular emissions via an alternative transportation-focused mobility system (e.g. transit, walking, bicycles), the relocation of parking to the perimeter of campus, and the construction of a transit hub at the academic core;
- Advance green stormwater and carbon sequestration efforts through strategic reforestation along major campus corridors and the integration of substantial landscape elements into the proposed accessible pathway system (particularly the Green Links); and
- Conserve energy by promoting energy-efficient building siting and design, as well as conversion to alternative energy sources (in keeping with the university's Climate Action Commitment).

Over the 2019-20 academic year, the 2018 Campus Master Plan has continued to be adopted and implemented across campus. Throughout the year, collaborative, partnership-driven continuous planning processes were launched, including the development of unit-level strategic plans and feasibility studies to inform prioritization and implementation of Beyond Boundaries 2047.

Another plan which is currently being written and that will help Virginia Tech reach its sustainability goals is the Campus Urban Forest Master Plan. This plan is being created by University Arborist Jamie King and will set the tone for how the Division of Campus Planning, Infrastructure, and Facilities will manage campus natural resources and care for Virginia Tech's trees. Among the goals that this plan hopes to lay out is to preserve valuable and safe trees on campus; institute an urban tree canopy goal; institute a campus tree policy; and provide opportunities for teaching and research on a campus that is safe and beautiful. Questions regarding urban forestry at Virginia Tech can be directed to Jamie King at campusarborist@vt.edu.

The university's newly updated Design and Construction Standards Manual (facilities.vt.edu/planning-construction/design-and-construction-standards) outlines the philosophy, standards, recommendations, and requirements for the design and construction of campus buildings. More information on the Design and Construction Standards Manual can be found in Point 7: Electricity and Heating Efficiency.

Point 3: Reduction of Campus GHG Emissions

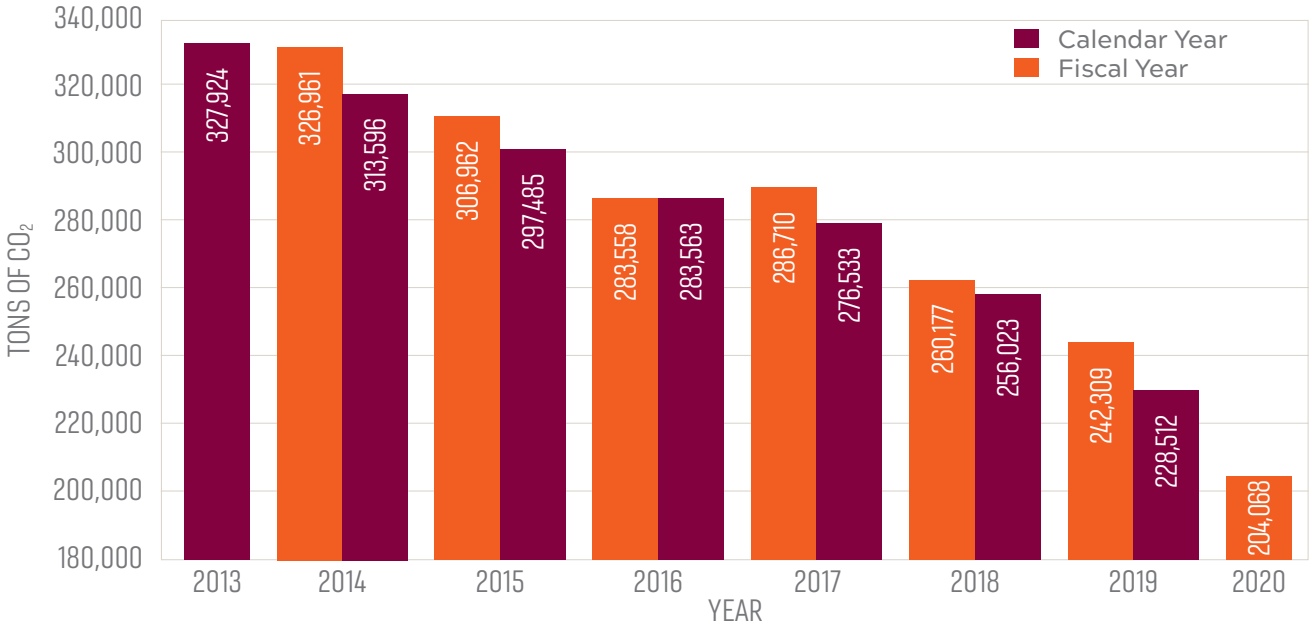
"Virginia Tech will establish a target for reduction of campus GHG emissions to 80% below 1990 emission level of 188,000 tons by 2050. Interim targets from 2006 emissions of 316,000 tons will be: for 2012, 295,000 tons (on path to 2025 target); for 2025, 255,000 tons (2000 emission level); and for 2050, 38,000 tons (80 percent below 1990 emission level)."

Virginia Tech has continued achieving steady progress in reducing GHG emissions while at the same time having a robust construction program. Much of that reduction is attributable to the increased use of natural gas as the university's primary fuel source and the introduction of boiler pollution reduction initiatives, and many energy conservation measures.

Figure 1 shows the decline in GHGs both from a calendar year and fiscal year perspective. FY2020 shows a 15.8 percent decrease in total emissions compared to FY2019. This is a great improvement as the decrease in total emissions between FY2019 and 2018 was only 5 percent. **There were three main reasons for this large decrease in total emissions:**

1. Virginia Tech Electric Service (VTES) purchased RECs for CY2019 and CY2020. RECs, or Renewable Energy Credits, can be purchased by utilities to increase the amount of renewable energy used in the energy mix their electricity comes from. For example, the typical fuel mix from American Electric Power (AEP) for this region is made up of about 10 percent renewable sources. By purchasing RECs, VTES increased their renewable sources by 10 percent in CY2019 and 20 percent in CY2020. Thus, the resulting renewable mix for CY2019 was around 20 percent while in CY2020 it was around 30 percent. This increase in renewable sources significantly decreased campus emissions due to purchased electricity.

FIGURE 1: VIRGINIA TECH ANNUAL CO_2 EMISSIONS



2. The COVID-19 pandemic caused an abrupt shift to online learning during spring 2020. Most campus buildings were limited to certain personnel and students stopped coming to campus. This resulted in less electricity use, along with a reduced heating and cooling load during the spring and summer months. In addition to the reduction of other sources of emissions such as commuting and air travel, emissions fell sharply in FY2020 Q4 compared to previous years.
3. The campus steam plant used more natural gas and less coal than ever. The shift to natural gas provided more GHG savings compared to previous years due to cleaner emissions provided by its usage. A new gas-fired boiler was recently brought into commission and will enable the steam plant to use even less coal in future years.

FIGURE 2: VIRGINIA TECH GHG EMISSIONS PROGRESS

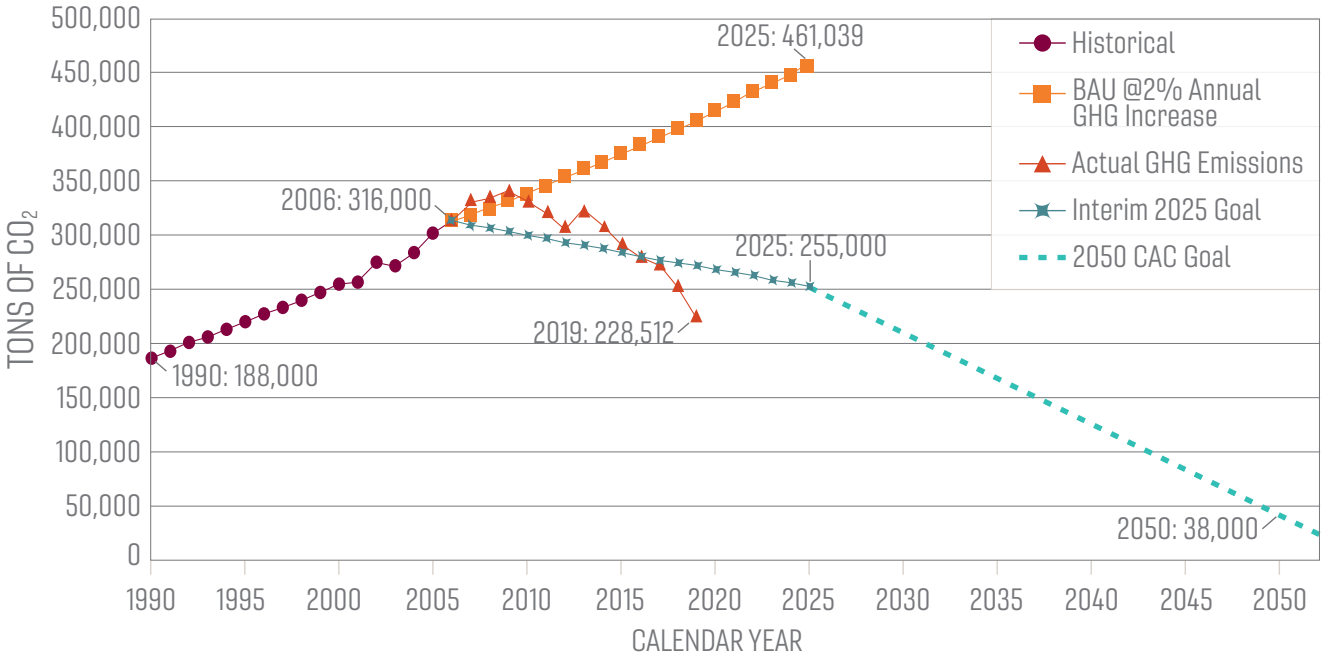
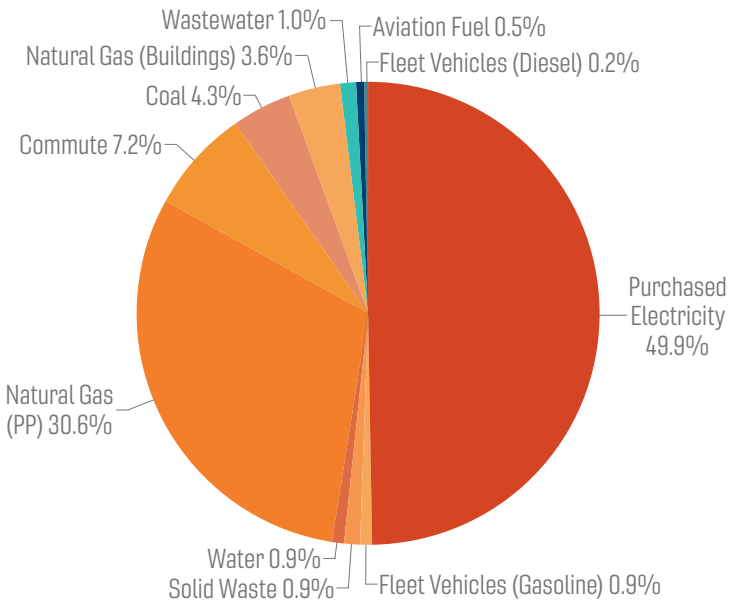


Figure 2 depicts the university's GHG emissions from 1990 to 2006. At that point, if the university had taken a business as usual (BAU) approach the GHG emissions would have continued on an upward trajectory as shown by the orange square dotted line. However, at that point, Virginia Tech began to introduce its Boiler Pollution Reduction initiatives and energy conservation measures. The university established reduction targets for 2025 (teal diamond dotted line) and 2050 (dashed turquoise line). The red dotted line depicts the university's actual GHG emissions which is on a downward trend line. During CY2019, the university achieved emissions below the interim 2025 goal for the first time, and 5 years early. Due to the impacts of COVID-19, increased campus efficiency, and VTES RECs purchases, the Office of Energy Management projects that CY2020 emissions will continue on this downward trend. Reaching the 2050 goal will require a considerable investment in renewable energy.

FIGURE 3: GHG EMISSIONS BREAKOUT FY 2020



The pie chart in **Figure 3** shows the distribution of GHG emissions by source for the 2020 fiscal year. The largest sources of GHG emissions are purchased electricity (49.9 percent, a decrease from FY2019) followed by natural gas (30.6 percent, an increase from FY2019) used in the co-generation steam plant.

Figures 4, 5, and **6** show power plant fuel consumption, usage, and GHG emissions between FY2014 and 2020. The main point to note is that power plant fuel consumption has remained relatively steady with a 75 percent decrease in coal use as Virginia Tech has switched to cleaner burning natural gas. Power plant GHG emissions have been reduced over the past 6 years due to this change in fuel source.

Figure 4. Power Plant Fuel Consumption. This figure shows the steady decline in the use of coal at Virginia Tech from FY2014 to 2020. **In FY2020, the power plant consumed 92.5 percent natural gas and only 7.5 percent coal!**

Point 4: Improved Energy Efficiency

"Virginia Tech will work toward these emission reduction targets through improved energy efficiency, reduction of energy waste, replacement of high-carbon fuels, and other measures identified in the Virginia Tech Climate Action Commitment and Sustainability Plan."

The Office of Energy Management within the Division of Campus Planning, Infrastructure, and Facilities guides the operations of the university to achieve tangible reduction in energy consumption on campus through the development and implementation of various Demand Side Management (DSM) policies, initiatives, and projects.

DSM promotes energy efficiency by means of upgrading, retrofitting, and commissioning mechanical, lighting, building automation, and electrical systems in university buildings. The Office of Energy Management launched a Five-Year Energy Action Plan in 2015 to address the energy efficiency improvements within a group of the 50 most energy-intensive buildings on campus. Additionally, numerous other ongoing projects are in effect to successfully manage energy consumption on campus.

While DSM is primarily concerned with reducing on-site energy consumption and related costs, it has the potential to support the university's commitment to sustainability. The benefits gained from the program include carbon footprint reduction, improvement of indoor air quality, and conservation of resources. These reductions can be visualized in actualized savings achieved under the Five-Year Energy Action Plan discussed below. The DSM program will help the university to be less vulnerable to sudden changes in the energy market and set its way towards a net zero energy future.

FIGURE 4: POWER PLANT FUEL CONSUMPTION

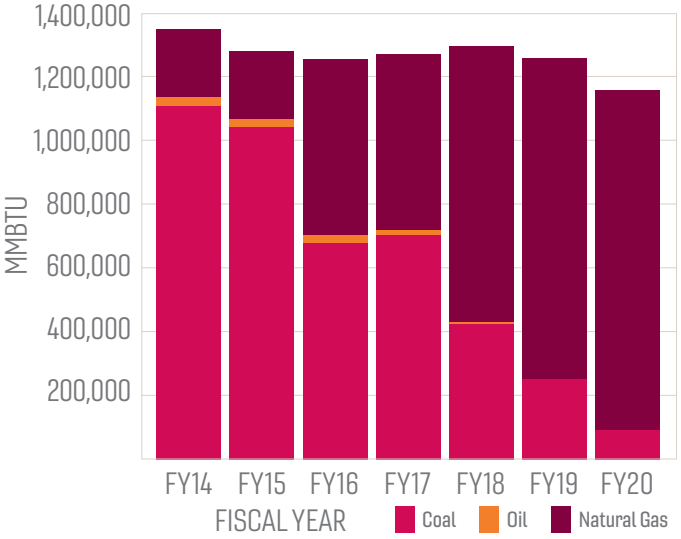


FIGURE 5: POWER PLANT FUEL USAGE BY TYPE

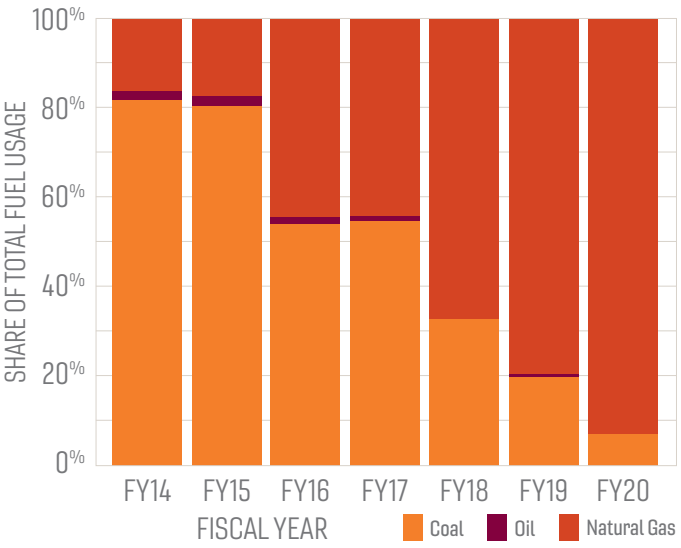
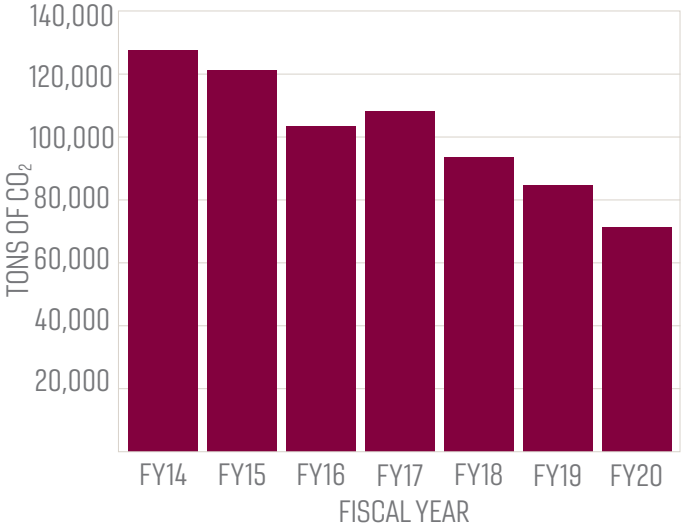


FIGURE 6: POWER PLANT GREENHOUSE GAS EMISSIONS



Virginia Tech Guidelines for Energy Efficient Design

The Division of Campus Planning, Infrastructure, and Facilities is in the process of formalizing standards to ensure that the design and construction of buildings at Virginia Tech comply with the Virginia Energy Conservation code. The purpose of Virginia Tech Guidelines for Energy Efficient Design (facilities.vt.edu/energy-utilities/energy-reduction-efforts/energy-efficiency-design-guidelines) is to formulate additional requirements which go beyond the applicable Energy Code and are specific to the university.

This document presents recommended design elements in ten sections each representing a vital interrelated component of an energy-efficient design and includes running a building energy simulation, efficient building shell design, windows and daylight harvesting, efficient use of lighting and power, heating and cooling, ventilation, local service water heating, building automation, renewable energy systems, and energy metering.

Five-Year Energy Action Plan

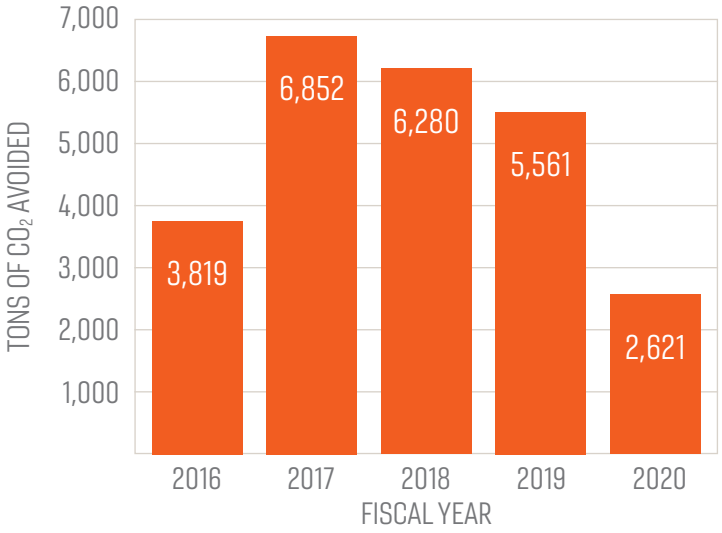
When the Virginia Tech Office of Energy Management conducted an energy benchmarking analysis of existing buildings on the main Blacksburg campus in 2015-16, it discovered 50 buildings accounted for over 70 percent of overall university energy costs. That is only 35 percent of all buildings on campus. This discovery was the catalyst for the Five-Year Energy Action Plan, a comprehensive blueprint to improve energy efficiency and reduce energy costs within five years in the 50 most energy-intensive, "energy hog" buildings.

Managed by the Office of Energy Management within the Division of Campus Planning, Infrastructure, and Facilities, the Energy Action Plan combines energy data analysis with a range of retrofitting projects to achieve significant energy cost reductions. Since 2016, five phases of the Five-Year Energy Action Plan have been implemented, with new energy-intensive buildings incorporated into each phase. Under the Energy Action Plan and its five phases, the university has already reduced its carbon emissions by about 25,000 tons per year and saved nearly $3 million in equivalent annual energy costs; full integration of the plan is expected to yield more than $6.3 million in overall cumulative energy cost savings.

Figure 7 shows the amount of CO_2 emissions avoided (in tons) per fiscal year for the implementation of the five phases of the Five-Year Energy Action Plan.

With the completion of the Five-Year Energy Action Plan in FY2020, the Office of Energy Management looks to the future in developing an aggressive Ten-Year Energy Action Plan to substantially reduce emissions through FY2030. Projects completed under the Five-Year Energy Action Plan proved the success of improving efficiency and similar projects will continue being completed for additional buildings around campus.

FIGURE 7: ENERGY SAVINGS EMISSIONS AVOIDANCE



OPTIMIZING ENERGY USAGE WITH DATA

Using data to guide decisions and achieve energy efficiency at scale is at the core of the Energy Action Plan. The Office of Energy Management utilizes a combination of central energy management platform and building-level spreadsheets to monitor energy usage in real-time. New buildings were added to the energy management platform during each project phase and help to visualize real-time parameters of energy use. Building spreadsheets enable detailed analysis in performance of buildings, especially with regard to project savings achieved.

Through newly installed smart meter and sub-meter infrastructure, energy data is stored in various campus systems that enable the Office of Energy Management and other users to identify potential projects and track energy usage per building. Practitioners can then identify energy consumption patterns to optimize lighting, ventilation, heating, and air based on demand. Data visualization can also help detect irregular spikes in energy usage.

O'Shaughnessy Renovation Lighting Fixture

The Office of Energy Management is currently working with other facilities departments to develop a Master Metering Plan to provide enhanced metering capabilities on campus. This will ultimately enable more detailed and accurate cost accounting and budgeting for campus building users, along with providing even more energy data that can be analyzed.

ADDRESSING OPERATIONAL INEFFICIENCIES

Under the Energy Action Plan, ongoing retrofitting projects help to improve energy efficiency in energy hog buildings. Retrofitting projects implemented under the plan so far include LED lighting replacement, smart meter and sub-meter installation, building automation system (BAS) improvements, insulation upgrades, HVAC upgrades, building envelope improvements, and retro-commissioning. Laboratories, which are the largest energy usage contributors on campus, are also included under the Energy Action Plan by addressing various energy inefficiencies. Such projects are expected to continue under a new energy action plan. Many energy saving projects have been identified and are awaiting implementation as more resources and personnel become available for the Office Energy Management.

PHASE 5: LOOKED TO THE FUTURE OF ENERGY EFFICIENCY ON CAMPUS

More than $3.1 million in funding was approved in December 2019 to execute the fifth phase of the Energy Action Plan to deepen the university's energy conservation efforts. In Phase 4 (2018-19), a new solar project was partially funded and underwent preliminary design. During Phase 5 (2019-20), additional funding was made available with the projected design and construction is to be completed in FY2021. This will diversify the university's energy portfolio and be the largest solar addition on campus to date. In addition, retrofitting and energy accounting projects under Phase 5 helped to ensure the longevity of mechanical and lighting systems for years to come.

Projects under Phase 5 included the implementation of energy retrofit projects identified in Phase 4: LED lighting upgrades, lab ventilation optimization, steam pipe insulation, the integration of additional energy-intensive buildings into the energy management platform, and development of a rooftop solar project (one building). In addition, a compressed air system improvement project was implemented at the central steam plan which included piping improvements and the installation of new energy efficient desiccant air dryers.

RETRO-COMMISSIONING (RCX)

Commissioning of existing buildings or retro-commissioning, is a systematic process applied to existing buildings for identifying and implementing operational and maintenance improvements and for ensuring their continued performance over time. Beginning in 2018, the Office of Energy Management increased this effort significantly in Phase 4 buildings, as well as those buildings in previous plan years. Phase 5 continued this effort with current savings estimated at $80,000 per year at an investment of just under $5,000. Internal resources and commitment to RCx were limited in FY2020 resulting in lower than estimated values; yet those measures addressed were done predominantly with in-house labor, thus resulting in low simple payback. These types of savings when combined with other larger payback projects (i.e. solar) will help maintain overall energy fund simple paybacks within target values. Over 700 individual RCx measures were proposed in Phases 4 and 5. Of those 700, 300 have been implemented with over 400 still to be addressed. Hundreds of other RCx measures are in study or development; or awaiting approval for implementation. RCx will continue to be a major contributor to reducing energy consumption on campus.

Point 5: VT will Maintain a Sustainability Office

"Virginia Tech will maintain a sustainability office to:

a. Coordinate programs for campus sustainability,
b. Oversee implementation of the VT Climate Action Commitment and Sustainability Plan,
c. Monitor annual electricity and other energy use and GHG emissions,
d. Working with faculty and departments, manage a campus-wide student internship and undergraduate research program using the campus as a sustainability laboratory,
e. Coordinate communication regarding campus sustainability initiatives and programs to the university community and external audiences."

The Office of Sustainability was established within the Division of Campus Planning, Infrastructure, and Facilities and acts as a central hub to connect the many sustainability champions and efforts taking place all across campus. The office is staffed by two full-time employees and a part-time graduate assistant who carry out a wide range of activities from high-level sustainability planning to organizing outreach events or managing 20 student interns during the academic year.

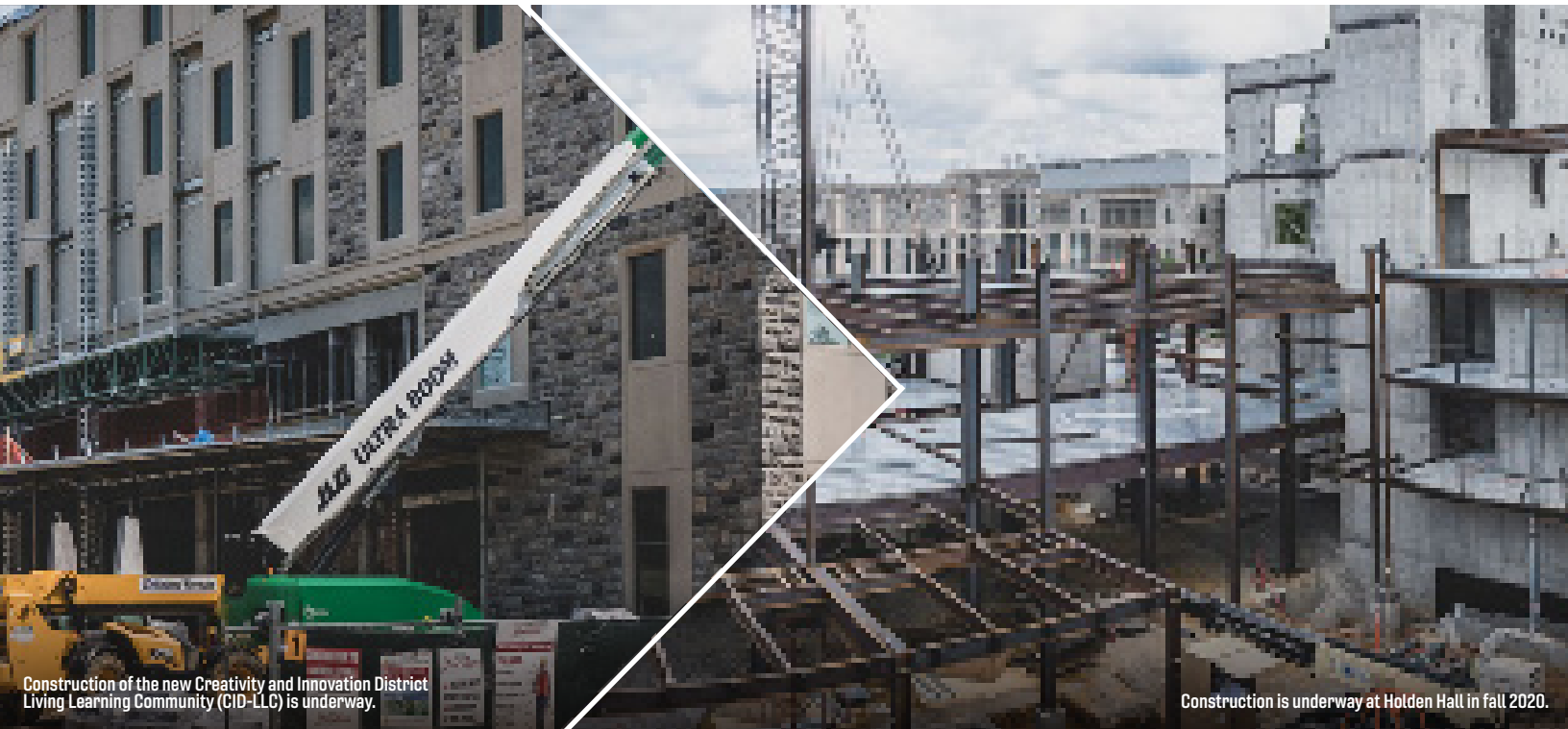
THE OFFICE OF SUSTAINABILITY HOUSES THE FOLLOWING PROGRAMS:

- Undergraduate Student Internship Program (see Point 10);
- Green Graduates (see Point 12);
- Green Day Green Tailgate (see Point 8);
- Green Request for Proposals Program (see Point 14);
- Y-Toss (see Point 8);
- Sustainability Week (see Point 12); and
- Earth Week (see Point 10).

Point 6: LEED Standards for New Construction, Major Renovations, and Existing Buildings

"Virginia Tech will improve the sustainability of its built environment by:

a. Achieving LEED Silver certification or better for all eligible and applicable new buildings and major renovations.
b. Evaluating the feasibility of LEED for Existing Buildings certification for its existing buildings."



Construction of the new Creativity and Innovation District Living Learning Community (CID-LLC) is underway.

Construction is underway at Holden Hall in fall 2020.

The U.S. Green Building Council provides a green building certification program known as LEED, or Leadership in Energy and Environmental Design. This program scores buildings on their level of energy efficiency based on a point system. Currently, the university has 36 LEED-Registered Buildings totaling over 3.1 million gross square feet (17 certified; seven occupied and pending certification; four under construction; and eight in design). The university has specified that all new buildings entering the design phase of construction that are greater than 5,000 gross square feet in area, or the renovation of such buildings where the cost of renovation exceeds 50 percent of the value of the building, shall conform to LEED Silver standards or better.

For a complete list of LEED-certified buildings separated by LEED Gold, Silver, and Certified along with gross square footage and completion status, see **Figure 8.** Please note that this table was updated in August of 2020 and therefore includes data from outside of the 2019-20 Academic Year. The only building on this list that falls outside of our reporting timeframe is the Classroom Building as it was certified on August 12, 2020.

Goodwin Hall, LEED Gold.

The Moss Arts Center, LEED Gold.

FIGURE 8: LEED REGISTERED BUILDINGS

LEED GOLD PROJECTS	Gross Square Feet
▲ Ambler Johnston Hall	269,463
▲ Moss Arts Center	147,382
▲ Goodwin Hall	154,935
▲ Human and Agricultural Biosciences Building I (HABBI)	93,860
▲ Institute for Critical Technology and Applied Science Ph II (ICTAS II)	42,190
▲ Henderson Hall Renovation and Theatre 101 Addition	38,750
	746,580
LEED SILVER PROJECTS	
▲ Pearson Hall East	111,191
▲ Pearson Hall West	108,765
▲ Indoor Athletic Training Facility	91,600
▲ Lavery Hall	77,301
▲ Classroom Building	72,275
▲ O'Shaugnessy Hall Renovation*	69,200
▲ Baseball Facilities Improvements*	49,872
▲ Rector Field House*	43,949
▲ Football Locker Room Addition	42,145
▲ Davidson Hall*	25,151
▲ Vet Med Instructional Addition	24,600
▲ Oak Lane Phase IV	20,508
▲ Sandy Hall*	19,889
▲ Chiller Plant Phase I (Southwest Chiller Plant)	16,655
▲ Liberal Arts Building*	15,394
▲ Undergrad Science Labs - Renovation (Derring Hall)*	13,127
● Creativity and Innovation District Living Learning Community (CID-LLC)	224,500
● Virginia Tech Carillon Biomedical Research Expansion	139,586
● Holden Hall Renovation	101,240
● Student Athletic Performance Center	25,800
✦ Innovation Campus Academic Building	300,000
✦ Student Wellness Improvements	263,000
✦ Data and Decision Sciences Building	120,000
✦ Hitt Hall and New Dining Facility	112,000
✦ Undergrad Science Labs - New Construction	102,000
✦ Corps Leadership and Military Science Building	60,500
✦ Global Business and Analytics Complex Residence Halls	60,500
✦ Multi-Modal Transit Facility	13,606
	2,324,354
LEED-CERTIFIED PROJECTS	
▲ Renovation Davidson Hall	44,845
▲ Visitors and Undergrad Admissions Center	18,155
	63,000

Status: ▲ Complete ● Construction ✦ Design

Point 7: Electricity and Heating Efficiency

"Virginia Tech will improve electricity and heating efficiency of campus facilities and their operations by:

a. Exceeding the most current version of ASHRAE 90.1 energy performance by 10 percent for all new buildings and major renovations. Capital budgets should account for future energy price, life cycle cost of building operation, and environmental benefits of achieving this level of performance.

b. Improving the heating and cooling infrastructure and operation, lighting efficiency, equipment efficiency, and metering and controls of its existing buildings."

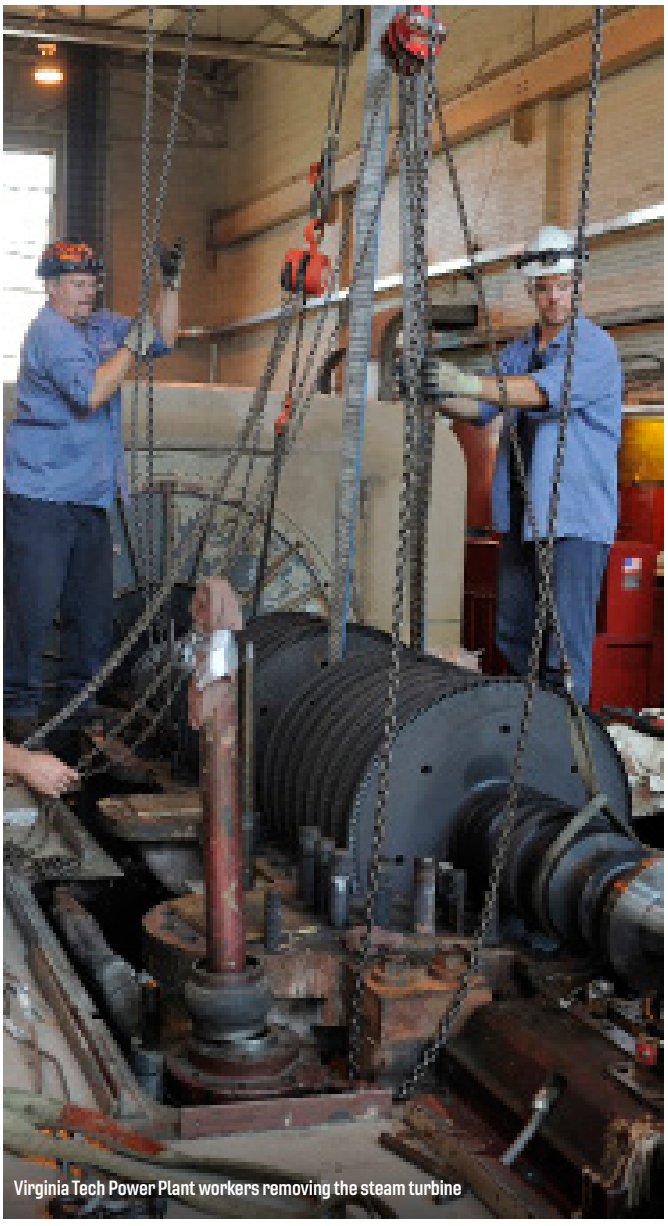
Installation of the new gas boiler at the Central Steam Plant on campus in winter 2020.

Virginia Tech Utility Services

The Division of Campus Planning, Infrastructure, and Facilities operates and maintains an electric distribution utility, a co-generation steam plant, two central chilled water plants, and the associated distribution systems required to transport these services.

Virginia Tech Electric Service

Few universities serve the electrical needs for their surrounding communities - none to the extent of Virginia Tech and the Virginia Tech Electric Service (VTES). VTES has been in the business of providing primary electrical distribution service to the campus and other customers for more than 100 years. VTES is the electric utility provider for the Blacksburg campus and about 7,000 residential and commercial customers in the Town of Blacksburg. Over 1,300 "Hokie" lights and 650 streetlights on the Blacksburg campus are maintained by VTES as well as more than 1,000 streetlights and 370 dusk to dawn lights within the Town of Blacksburg.


Virginia Tech Power Plant workers removing the steam turbine

Central Steam Plant

The Central Steam Plant is a co-generation asset that produces centralized steam and simultaneously uses some of that steam as a by-product to generate up to 6.25 megawatts of electricity. That electricity production offsets the electricity purchased by the university for distribution across campus and within Blacksburg.

Co-generation continues to gain importance in United States energy planning because it helps to increase thermal efficiency of the Central Steam Plant; reduce greenhouse gases and other harmful emissions; consumes no cooling water

Southwest Chiller Plant

in generating electricity; and refocuses infrastructure investments on distributed generation and smart energy options. The university recently completed the installation of a nearly $7 million, 100,000 pound-per-hour gas-fired boiler in place of the decommissioned boiler. Beyond the long-term financial benefits, the new gas boiler will result in a reduction of carbon dioxide emissions and increase the plant's overall capacity to meet future campus growth.

Compressed Air Plant

The central campus compressed air plant, located within the central steam plant facility, includes a total of eight air compressors and three desiccant air dryers. It serves processes in the power plant, in addition to labs and shops across campus. Reduced airflow and pressure while delivering the same amount of air enables a more efficient system all while meeting end-user needs. Recent projects will improve plant efficiency in these ways, including the addition of a new variable speed compressor, compressed air piping improvements, the addition of a pressure flow controller, and the replacement of existing inefficient air dryers with newer, more efficient technology.

Campus Chilled Water Infrastructure

Virginia Tech also has two districts served by chilled water plants that leverage a complex system of water cooling that is then pumped to nearby buildings to help reduce room temperatures and cool research equipment. In general, a chilled water plant is 50 percent more efficient than cooling systems in individual buildings. Long-range plans call for building more centralized chilled water plants in various parts of campus. This will improve energy efficiency, reduce costs, and allow for additional growth. A project to upgrade existing chiller plant equipment is underway and should be complete in summer 2021.

Design and Construction Standards

The university's Design and Construction Standards Manual (facilities.vt.edu/planning-construction/design-and-construction-standards) outlines the philosophy, standards, recommendations, and requirements for the design and construction of campus buildings. As a component of the Design and Construction Standards, Guidelines for Energy Efficient Design address the energy-efficiency and on-campus renewable energy utilization requirements. These standards apply to all new construction, addition, and renovation projects on campus. Sections of the Design and Construction Standards Manual focus specifically on sustainability in areas such as Sustainable Design and Waste Management both inside and outside of new buildings. More information on the DCSM and sustainability construction standards can be found in the Appendix.

Point 8: Minimize Waste - 50 Percent Recycling Rate

"Virginia Tech will minimize waste and achieve a 50 percent recycle rate by 2020."

Virginia Tech, the Town of Blacksburg, the Town of Christiansburg, and Montgomery County are the four jurisdictional members of the Montgomery Regional Solid Waste Authority (MRSWA). Located in Christiansburg, MRSWA operates a transfer facility that receives the majority of the university's principal recyclable materials (PRMs), and all of municipal solid waste (MSW).

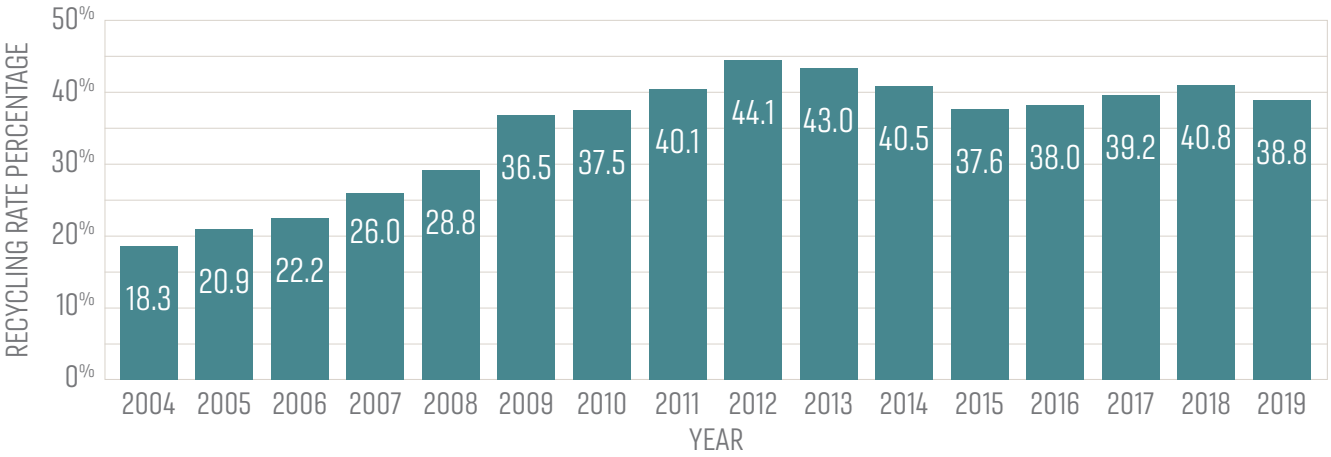
Virginia Tech transitioned to a Single Stream Recycling System on July 1, 2015. Recyclable materials are transported from the university to MRSWA, weighed, and further transported to Recycling and Disposal Solutions (RDS) in Roanoke. RDS serves as the recycling hub for the region receiving materials from both the New River and Roanoke Valleys. Food waste is collected from 11 on-campus dining facilities and stored temporarily at a consolidated campus location in a 10-ton sledge container. When the sledge container is full, composting company Royal Oak Farm (ROF) delivers an empty container and transports the full container to their location near Lynchburg, Va.

Solid waste materials are transported from the university to MRSWA, weighed, and further transported to the local landfill operated by the New River Resource Authority (NRRA) in Pulaski County in Dublin, Va.

MRSWA prepares a consolidated recycling rate report for the region to include the four jurisdictional members and submits it to the Department of Environmental Quality (DEQ). Virginia Tech uses the DEQ format and formula to calculate its recycling rate and waste diversion rate. The waste diversion rate includes all additional materials diverted from the local landfill. Reporting is done on a calendar year basis.

Figure 9 shows Virginia Tech Recycling Rates from CY2004 to 2019. During that time, Virginia Tech's recycling rates increased by nearly 25 percent to a high-water mark of 44 percent in 2012, and then have remained in the 38 to 43 percent range ever since. The dip in recycling rate during the period 2015-17 was due to the unexpected closing of nearby composting facility Poplar Manor Enterprises (PME) located in Riner, Va. in April 2015. Royal Oak Farm is the only permitted composting facility within 100 miles of Virginia Tech, and, for various reasons, it took two years to establish a composting contract for food waste with them.

FIGURE 9: RECYCLING RATES



For CY2018, Virginia Tech reported 2.242 tons of principal recyclable materials which included 679 tons of food waste, 458 tons of fiber (paper and cardboard), and 456 tons of commingled material (single-stream recycling). Virginia Tech reported 4,000 tons of municipal solid waste (trash). The university's recycling rate was 41 percent and the waste diversion rate (waste kept out of the local landfill) was 70 percent.

For CY2019, the university's principal recyclable materials dropped to 2,031 tons which included 566 tons of food waste, 319 tons of fiber, and 430 tons of commingled material. The municipal solid waste was essentially the same as the previous year. The university's recycling rate was 40 percent and the waste diversion rate (waste material kept out of the local landfill) was 80 percent. The food waste reduction was attributable to a temporary equipment problem with the metal shroud that allows food waste from the transport vehicle to flow into the ROF sledge container.

For CY2020, the COVID-19 global pandemic has had a significant impact on our waste management program. Following a two-week spring break, the university pivoted to online classes with minimal students returning to campus living in the residence halls. As a result, the tonnages for both principle recycling materials and municipal solid waste plummeted for the second quarter (April through June). As a way of comparison (if compostable food is not included) for the 2019 second quarter Virginia Tech reported 186 tons of recycled material and 1,085 tons of trash. For the 2020 second quarter, Virginia Tech will report 112 tons of recycled material and 318 tons of trash. The recycling and waste diversion rates for CY2020 will be impacted.

Game Day Green Tailgate

The Game Day Green Team promotes tailgate recycling during home football games by passing out blue recycling bags to tailgaters in the six highest impact parking lots surrounding Lane Stadium, including the Coliseum, Stadium, Maintenance, Track and Field, Chicken Hill, and Litton-Reaves Parking Lots. The Green Team educates tailgaters on what can and can't be recycled, and how to green their game day experience.

High impact parking lots targeted by Game Day Green Team volunteers

Game Day Green Team

Ways to green your game day:

1. Carpool to the game.
2. Use propane to grill.
3. Bring reusable plates, cups, utensils, and grocery bags.
4. Recycle bottles, cans, and glass in bags provided by volunteers.
5. Buy in bulk - not single serving snacks (reduces packaging waste).
6. Buy local from the Blacksburg Farmers Market.

The Game Day Green Team is led and organized by students who manage supplies, recruit volunteers, work with the Division of Campus Planning, Infrastructure, and Facilities on waste collection, and execute the program on each home game day. The program had 82 student volunteers for the fall 2019 football season and the program resulted in the collection of 6.29 tons of recyclable materials. To date, the Green Tailgating program has resulted in the collection of over 18 tons of recyclables.

Y-Toss Program

The YMCA at Virginia Tech facilitates one of the largest student-run waste diversion projects on campus called Y-Toss. Y-Toss is the YMCA at Virginia Tech's largest sustainability initiative. At the end of each academic year, collection pods are placed strategically around campus to collect gently used household items from residence halls, academic buildings, and the surrounding community. Then, at the start of the following academic year, items are re-sold during move-in week at Cassell Coliseum.

Since its inception in 2015 and in the past, together with our partners and sponsors, Y-Toss has diverted more than 100 tons of gently used household items from the waste stream; engaged over 1,300 community volunteers in service to students and families; and generated over $60,000 to support student-led programs that nurture the potential of youth and teens, improve the health and well-being of individuals and families, and inspire social responsibility throughout the New River Valley. Despite the move out process looking a little different after the spring 2020 semester due to COVID-19, Y-Toss was still an active program which successfully diverted 3.5 tons of materials from the landfill in 2019-20. Collection bins were made available to students and placed around campus during the delayed June 10-20, 2020 move-out time frame.

Y-Toss Pod

In past years, the Green RFP program has provided support through signage and marketing materials to ensure the collection was a success. Thanks to continued support from the Green RFP program, Y-Toss has expanded to add in-hall collection bins so that collections can occur year-round in select residence halls. This will help facilitate a new Y-Toss "Pop-up Thrift Shop" where students can go to buy the used items that are collected.

Campus Kitchens filling paper bags with food.

Dining Services

Dining Services offers a free reusable to go program which reduces waste to landfill and allows for a sustainable way to eat on the go. The program follows three simple steps of eat, return, repeat! Over 350,000 meals have been served in reusable to-go containers since 2014. This program has also kept 5,000 pounds of packaging out of the landfill since its inception.

During the Fall semester, Dining Services held pop-up "Choose to Reuse" tabling events in the dining halls which allowed for open discussions with students about the marketing of the green to go program, educated students about the benefits of participating in the reusable to-go program, and reminded them to return their containers to the dining halls when they were done with them. These pop-up stands resulted in a 37 percent increase in return rate of reusable to-go containers, resulting in savings of roughly $30,000.

The reusable to go program continued to serve the surrounding community even after students returned home in March due to COVID-19. English Meadows Senior Living, which operates two campuses in Montgomery County, struggled to find scarce supplies to provide in-room meal services for their residents with the rise of COVID-19. They ordered 1,500 reusable meal containers but their supplier could only ship 600 due to the huge demand. Within days of hearing about the shortage, Dining Services was able to loan 1,000 reusable to go containers to English Meadows at no cost. More information about this effort can be found at vtnews.vt.edu/articles/2020/05/051820-dsa-vtdiningcovidseniorliving.

In addition, Dining Services was committed to providing additional reusable to-go containers collection points to students during move-out. Y-Toss PODS also served as an additional return station for reusable to-go containers. Six return locations were added and over 500 reusable containers were collected at the PODS.

Dining Services also works with Campus Kitchens at Virginia Tech (CKVT) to recover unused food to give to those in need within the New River Valley. Student volunteers have devoted over 2,500 hours with the CKVT since its launch in fall 2015. Before the campus shifted to remote operations in March due to COVID-19, the program was recovering surplus food from three dining halls six days a week. Over 188,000 pounds of recovered food have been delivered to our community partners: Radford-Fairlawn Daily Bread, the Giving Tree Food Pantry, Plenty! Farm and Food Bank, New River Valley Agency on Aging, Warm Hearth Village, and the YMCA after school program.

While Campus Kitchens is normally a student-led program, Virginia Tech employees volunteered to step in and run the program after all student events were suspended in March. Three VT Engage team members and an employee from the Dean of Students Office stepped up to deliver food three days a week. While the reduction in Dining Services' operations meant that less food was being produced on campus, at the same time dining employees were still working to clear out stored food that would no longer be used for student meals. During the months of March, April, and May, the Campus Kitchen team delivered more than 10,100 pounds of food to community organizations. More information about this effort can be found at: vtnews.vt.edu/articles/2020/05/051820-dsa-campuskitchencovid.

Point 9: Energy Star Equipment; Product Life Cycle Analysis

"Virginia Tech will:

a. Require purchase or lease of Energy Star-rated equipment and maximum practicable recycled content paper, in accordance with University Policy 5505, with exceptions for special uses.

b. Consider a product's life cycle cost and impact when making purchasing decisions."

Virginia Tech Sustainable Procurement Policy

In accordance with the Virginia Tech Climate Action Commitment and Sustainability Plan, the Virginia Tech Procurement Department recognizes its responsibility to support the university in its efforts to minimize negative impacts on health and the environment while supporting a vibrant campus community and local economy. The Department recognizes the types of products and services procured have inherent social, health, environmental and economic impacts, and that the Department should make procurement decisions that embody the university's commitment to sustainability whenever possible.

The full Virginia Tech Sustainable Procurement Policy can be found in the Appendix or bit.ly/VTSustainableProcurementPolicy. This document highlights the different sustainability factors that Procurement Department employees and those with delegated procurement authority will take into consideration. The document also declares that Procurement Department employees will utilize best practices in sustainable procurement, including always looking for environmental labeling and considering life cycle assessments. Environmental standards and certifications are also listed.

University Policy 5505 Campus Energy, Water, and Waste Reduction

University Policy 5505 (policies.vt.edu/5505.pdf) is an integral part of Virginia Tech's procurement process. This ensures that the university minimizes waste at the front-end of the process and not just the back-end which typically only promotes the recycling part of the 3R's of waste reduction (reduce, reuse, and recycle).

Policy 5505 states in section 3.3 Operations and Maintenance, "The university shall purchase or lease Energy Star-rated appliances and equipment for all classification when designation is available, provided performance criteria are met." Section 3.5 Waste Reduction states, "Purchase only recycled paper except where equipment limitations or the nature of the document preclude the use of recycled paper." Section 3.2 Building and Construction states, "A new building entering the design phase of construction that is greater than 5,000 gross square feet in size, or the renovation of such a building where the cost of renovation exceeds 50 percent of the value of the building, shall meet the Virginia Department of General Services, Division of Engineering and Buildings, Virginia Energy Conservation and Environmental Standards for energy performance and water conservation. All such buildings shall conform to U.S. Green Building Council LEED Silver standards, consistent with the Virginia Tech Climate Action Commitment.

Energy Star

Energy Star provides labels for appliances and other products that are superior in energy efficiency. Virginia Tech's goal is to set a minimum standard for all energy consuming equipment to be Energy Star-rated or better, assuming that the performance criteria are met.

All of these protocols listed above ensure the consideration of a product's life cycle cost and impact when making purchasing decisions. The current Virginia Tech Design and Construction Standards have also been revised and updated to reflect the use of Life Cycle Analysis when appropriate.

Point 10: Engage Students, Faculty, and Staff

"Virginia Tech will engage students, faculty, and staff through education and involvement to develop and implement innovative strategies for efficient and sustainable use of energy, water, and materials in all university-owned facilities."

Undergraduate Student Internship Program

The internship program's reach extends to both the campus and the surrounding community. The Office of Sustainability's vision is to create a sustainability network of student and community leaders throughout Virginia Tech, Blacksburg, and the greater New River Valley. The program utilizes campus as a sustainability living-learning laboratory, providing students with experiential learning opportunities to explore real-world problems and lead in the development of innovative solutions. Operations, engagement, and academics are integrated into impactful projects that benefit students and the local community.

The mission of the Student Internship Program is to provide students with valuable opportunities to create lasting, sustainable change at Virginia Tech while developing their professional skills and expanding their knowledge of the inner workings of the university. The program encourages ownership, creativity, and collaboration to solve some of the toughest sustainability problems the world is facing today. The program blends real-world projects with practical, skills-based professional development workshops to prepare students for an ever-changing career in the sustainability field. In fall 2019, the Office of Sustainability welcomed Nathan King as its new sustainability program manager. Nathan King is a Virginia Tech alum and previously worked as the director of sustainability at Western Colorado University.

The projects the students complete, paired with professional development classes and other trainings, allow students to sharpen and expand their environmental professional skill sets. Intern teams work on a variety of tasks, including:

- **Partner Projects:** Teams will partner with various departments such as Energy Management, Stormwater Management, Sustainable Dining, and Housing and Residence Life to complete technical projects.
- **Education and Outreach:** Teams will plan and execute outreach events in partnership with community organizations such as The YMCA, Town of Blacksburg, and Blacksburg Farmers Market. Past events include Thrift Swaps, Pop-up Farmers Market, and seed plantings.
- **University-Wide Campaigns:** Teams will assist in executing large-scale campaigns including Earth Week, Sustainability Week, and RecycleMania.

Dining Services Student Intern Partnership

During the fall 2019 semester, the Office of Sustainability's Student Internship Program and Dining Services kicked-off a new collaborative project. The purpose of this project is to identify/tag inventory items as local, recyclable, and/or compostable when applicable within the Dining Service's inventory management system. This project was created in an effort to better understand Dining Services' sustainable sourcing practices and begin working towards AASHE STARS Version 2.2 Credit OP-7 for Food and Beverage Purchasing.

Office of Sustainability staff at Gobblerfest 2020

Undergraduate student interns greet the Hokie Bird at Gobblerfest 2019.

The food tagging internship project is an exciting opportunity for students to gain real-world experience into supply chain management and sustainable purchasing practices. Interns will tag currently purchased items using the appropriate sustainability item tags and make suggestions for future sustainable purchases.

INTERN LEARNING OUTCOMES:

- Develop an understanding of the university dining sector.
- Draw connections between food purchasing and business operations.
- Gain valuable experience in supply chain management and sustainability.

CAMPUS SUSTAINABILITY IMPACTS:

- Leverage data-informed projects to assist decision makers make informed decisions.
- Develop communication channels and best practices for sustainable sourcing.
- Track our sustainable sourcing practices, in order to help Virginia Tech work towards its AASHE STARS OP-7 campus sustainability goals.

ASPIRATION FOR STUDENT LEARNING FOCUS:

- Pursue self-understanding and integrity.
  - Interns will form a set of affirmative values related to sustainable purchasing and develop the self-understanding to integrate these values into their decision-making when evaluating personal and professional purchasing decisions.

Green Graduates

The Green Graduates of Virginia Tech program asks graduating students to take a personal sustainability pledge that encourages them to think about the environmental impact of their jobs, travel, and other adventures after leaving Virginia Tech. The pledge gives students an opportunity to reflect on the values and lessons they gained during their time on campus and to think about which of those lessons and values they will take with them as they depart.

2019-20 Office of Sustainability student interns at a team building event.

By pledging, students are committing to foster sustainable behaviors both in their own lives and in the lives of their friends, family, and coworkers. To honor the students who wish to take such a pledge, the Office of Sustainability awards all pledge signers with a free green cord to wear at graduation. All undergraduate and graduate students are eligible to participate.

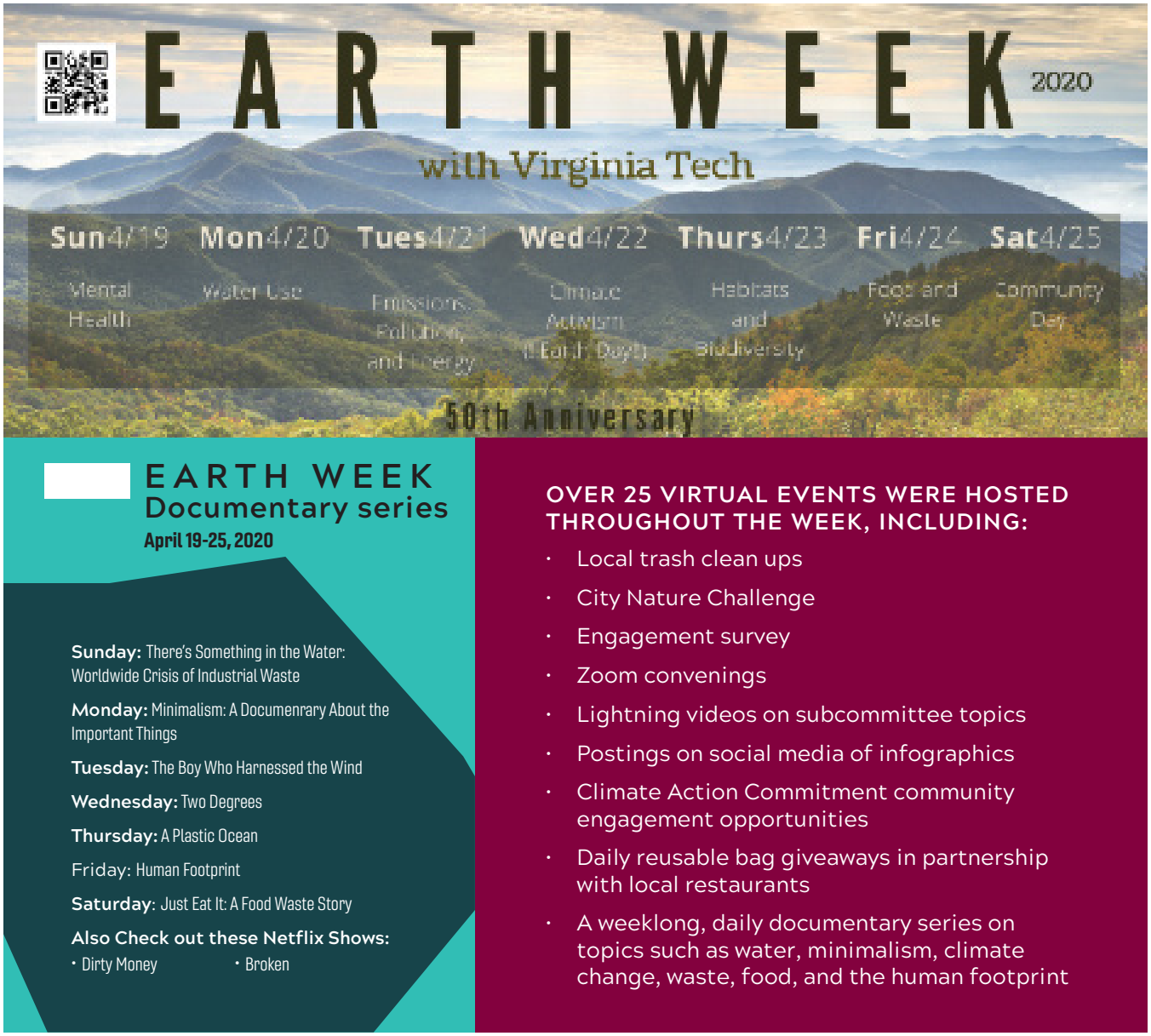
In 2019-20, 72 graduates participated in the program. While these numbers are lower than in previous years, it's important to highlight the fact that this program continued to run despite the COVID-19 pandemic requiring commencement ceremonies to be moved online for the spring 2020. The Virginia Tech Green Graduates program has been running for five years straight now.

Sustainable Dining

Homefield Farm is a partnership between Dining Services and the College of Agriculture and Life Sciences. This six-acre farm grows fruits, vegetables, and herbs for Virginia Tech Dining Services, and serves as a site of experiential student learning, interdisciplinary research, and community outreach. Over 200,000 pounds of produce were produced at Homefield Farm. Since fall 2016, Dining Services has held a Homefield Farm Pop-up Farm Stand on campus. Students are able to purchase fresh, local campus-grown veggies from Virginia Tech's very own Homefield Farm.

Dining Services is also making composting in the dining halls more efficient by removing 90 percent of water from compost waste at Turner Place in Lavery Hall through the use of their waste reduction technology. Nearly 5,000 tons of organic waste have been sent from Virginia Tech dining facilities for composting since 2009.

Virginia Tech is increasingly using products that promote a sustainable dining program and food systems. Local products are considered to be products sourced from within 250 miles of Blacksburg or within the Commonwealth. Produce, beef, lamb, pork, eggs, milk, herbs, fruits, and vegetables are all campus-sourced products.



Earth Week

Virginia Tech's Earth Week is a student-led celebration that occurs annually on the week surrounding Earth Day in April. The goal is to educate and engage the entire campus community and surrounding communities on the importance of sustainability, climate change mitigation, environmental stewardship, climate justice, health/wellbeing, and many other topics. The student organization, Environmental Coalition, designates an Earth Week Coordinator who partners with student leadership from over 20 other student organizations to develop events and educational materials for the week. This often includes community groups and other activist groups from around the New River Valley that are interested in partnering with students. The Office of Sustainability staff help support the planning and communication process in the months leading up to Earth Week.

The spring semester began with planning Earth Week as normal until the coronavirus pandemic spread to the United States forcing all in-person campus events to be cancelled and students to be sent home after spring break. Traditionally, Earth Week planning includes hosting forums where representatives from different interested student groups and community members can come together to share ideas for how they all want the week to look and what events we want to host. Instead of cancelling Earth Week entirely, the group decided to plan and promote a digital Earth Week celebration, which has never been done before at Virginia Tech.

Student leadership only had one month to plan and execute virtual events and had to scrap over 75 percent of their original in-person events. However, the Office of Sustainability staff were able to link student leadership through a series of Zoom meetings and utilized Google Drive to share resources for event planning. This led to Virginia Tech hosting over 25 virtual events during Earth Week that ranged from Zoom discussions to Instagram Live events to Facebook educational posts. Each day of the week had a general theme which included: Mental Health, Water Use, Emissions/Pollution, Climate Activism, Habitats/Biodiversity, Food/Waste, and Community. Some events under the themed days included: sustainable cooking demonstrations, scavenger hunt, Instagram bingo, community cleanup pictures, rural climate activism panel discussion, water use facts, promotion of local farms/businesses, and many more.

Students and staff were also able to link to various virtual events being held across the state and nation including EarthX 2020. Virginia Tech pooled links to virtual events with other colleges and universities around the Commonwealth through the Virginia Association for Sustainability in Higher Education network. Because of these efforts, people throughout the state had the opportunity to participate and not just those in the local area as with a "normal" Earth Week.

In short, Virginia Tech was able to successfully hold its first ever Digital Earth Week celebration and leveraged social media/technology to engage the community in a way that had not been done previously. It was also remarkable that student leadership, faculty, and staff were able to switch gears to an online format with less than a month to prepare and still hosted many engaging sustainability events.

SOME OF THE GROUPS INVOLVED IN EARTH WEEK PLANNING AND EXECUTION INCLUDE:

- Virginia Tech Students for Sustainable Practice
- Virginia Tech Environmental Student Organization
- Food Justice at Virginia Tech
- Sustainable Dining at Virginia Tech
- Virginia Tech Alternative Transportation Department
- YMCA at Virginia Tech
- Student Government Association
- Hokie Bike Hub
- Blacksburg Farmers Market

Climate Action Commitment Working Group

A working group was established to accomplish President Tim Sands' mandate to update and renew Virginia Tech's Climate Action Commitment. The Working Group is composed of faculty, staff, students, and community members and is broken up into 12 subcommittees with focuses on different topical areas addressed by the Climate Action Commitment. Some examples of subcommittee topical areas include agriculture and forestry, buildings operations, climate justice, energy opportunities, transportation opportunities, waste and recycling, and more.

The working group has two fundamental goals. The first is to produce a summary of the university's progress on sustainability since the university's first Climate Action Commitment was put in place in 2009. The summary will outline the structure, partnerships, and arrangements that have developed over time to address sustainability; include high-level data summarizing the institution's progress since 2009; and provide perspective on how these achievements compare to those at peer institutions.

Second, the working group will develop any proposed updates to the Climate Action Commitment that was last revised in 2013. They should consider whether updates to the definition, vision, and mission statements are needed; outline clear, measurable, and realistic goals; consider the long-term impact of the goals on policies, operations, and budget of the university; identify broad metrics and the elements for determining success in meeting these goals; and follow university policy format.

The Climate Action Commitment working group is a prime example of members of the Virginia Tech and Blacksburg communities coming together to promote overall sustainability. These working groups continued to meet and make progress on the Climate Action Commitment revision despite the shift to an entirely online format in March. Part of their response to the shift involved the creation of a series of videos, outlining their work. The playlist of videos can be found at youtube.com/channel/UCFXxSaBl6sD6ejVq3yGJfPw.

Another avenue that the working group used to make progress on the Climate Action Commitment revision process was virtual Earth Week. During the week, the working group opened up to the Virginia Tech community to educate them on the work they had done so far and to get feedback. They prepared lightning videos, teaching people about the work being done. They also distributed an engagement survey and had a Zoom Convening to get more people involved. This virtual convening had over 220 attendees.

Point 11: Transportation Energy Efficiency

"Virginia Tech will improve transportation energy efficiency on campus through parking, fleet, and alternative transportation policies and practices. The university will continue to implement programs that encourage the use of alternative transportation methods and will continue to implement programs and services that promote eco-responsible fleet management."

The Virginia Tech Alternative Transportation Department is housed within Transportation Services and coordinates the university's alternative transportation efforts. The following programs are offered by the Alternative Transportation Department:

Commuter Alternatives Program

The Commuter Alternatives Program, provided by Parking Services, offers two permit programs to meet employee and student commuting needs and encourage the use of alternative modes of transportation.

The first is a carpool permit which two or more people have to register together to receive. This permit gives participants access to reserved carpool spaces in preferred areas across campus.

The second is the Bike, Bus & Walk permit, which gives participants 16 discounted daily parking permits per semester (six per summer session). This permit acknowledges that it might not always be feasible to commute using alternative modes, and therefore allows for some flexibility for people who do.

Additional details on commuter alternatives can be found in the appendix in the brochure titled *No Car? No Problem.*

Hokie Bike Hub

The Hokie Bike Hub is a free bike repair and maintenance workshop for Virginia Tech affiliates. Cyclists have access to tools and one-on-one help for self-service bike repair. They can also attend bike maintenance workshops and Smart Cycling classes. The Hokie Bike Hub has become the home of bicycling on campus and serves as a social space for cyclists to interact and learn from one another. The Hokie Bike Hub had 2,256 visitors during FY2020 and was closed from March-July 2020 due to COVID-19.

Public Transportation

Several transit partners provide service locally (Blacksburg Transit and Radford Transit), regionally (Smart Way and Smart Way Express), and long distance (Campus Connect, Virginia Breeze, CollegeTransit, Abbott HomeRide, and Amtrak) from Virginia Tech's campus.

Bike Share

Roam New River Valley bike share launched in July of 2018 through a regional partnership with Virginia Tech, the Town of Blacksburg, the Town of Christiansburg, and Montgomery County. There are 75 bikes spread across 12 bike hubs. Eight of the hubs are on campus.

>3.5 MILLION BLACKSBURG TRANSIT RIDERS DURING FY 2020

16.5 TONS OF CO_2 EMISSIONS PREVENTED FROM ENTERING THE ATMOSPHERE IN ROAM BIKE'S FIRST TWO YEARS OF THEIR PROGRAM

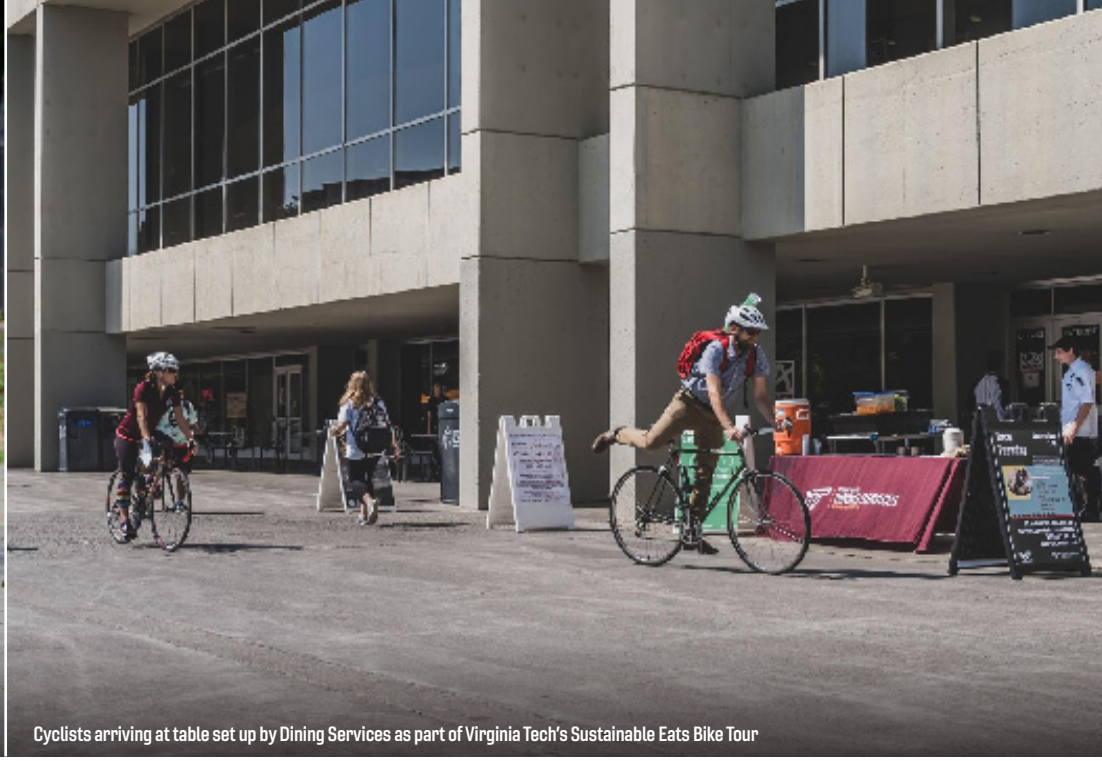
+850 VIRGINIA TECH ZIPCAR MEMBERS WHO SHARE JUST TWO VEHICLES

29% OF VIRGINIA TECH STUDENTS LISTED SINGLE-OCCUPANCY VEHICLES AS THEIR PRIMARY MODE OF TRANSPORTATION

STATS FROM ROAM'S SECOND YEAR OF OPERATION:

- 5,263 trips taken
- 17,197.98 miles biked
- $9,975 saved (when comparing the cost associated with driving a car the same distance)
- 15,165.49 pounds of CO_2 emissions prevented
- 687,919 calories burned

Cyclists riding on campus



Cyclists arriving at table set up by Dining Services as part of Virginia Tech's Sustainable Eats Bike Tour

Rideshare and Carshare

RIDE Solutions provides ride matching for the New River Valley. Their platform allows users to instantly find and communicate with potential carpool partners, join vanpools, and find transit or bike buddies to help them navigate their transportation choices, all via their smartphone or the web. Users can log their trips and earn rewards at over 2,000 local and national businesses.

RIDE Solutions' Guaranteed Ride Home Program provides any registered member a free ride home in the event of an emergency. This commuting "insurance policy" is your assurance that you will not get stranded at work.

Zipcar provides car sharing service to Virginia Tech affiliates, a greener alternative to car ownership. Membership gets you access to their national fleet for on-demand hourly and daily rentals. The service covers gas, insurance, parking and maintenance.

The Alternative Transportation Department reports on the use of each alternative transportation mode in the biennial Commuter Survey. The most recent survey was completed in 2018. It found that 49 percent of Virginia Tech affiliates use an alternative mode of transportation to get around. For students, Blacksburg Transit is the most popular alternative mode, and for faculty/staff, biking is the most popular.

Summer Bike Storage

The Alternative Transportation Department recently implemented a summer bike storage option for students. Permits are $20 and can be purchased through the Virginia Tech parking permit portal. Students can then email gettingaround@vt.edu to schedule a time to drop off their bike at the Hokie Bike Hub for secure storage. This storage option can be modified for all breaks or other long-term storage needs.

Bike Census

The Alternative Transportation Department partnered with interns from the Office of Sustainability to perform a bike census in fall 2019. This census allowed for the identification of bike racks on campus which seem to be getting the most use and for the characterization of all bike rack conditions on campus. Identifying which racks were in need of repair allowed the Alternative Transportation Department to update and replace broken and outdated bike racks on campus to meet Association of Pedestrian and Bicycle Professionals guidelines.

Big Belly Trash Compactor with new labels.

Point 12: Sustainability-Related Academic Programs

"Virginia Tech will continue to develop and implement innovative sustainability-related academic programs in instruction, research, and outreach, and will coordinate and communicate these programs to the university community and external audiences."

Sustainability Offerings

Virginia Tech offers 569 sustainability focused courses and an additional 395 courses that include sustainability-related class topics. 93 percent of all academic departments at Virginia Tech offer courses with a sustainability focus. A total of 84 percent of students adopt at least one sustainability learning outcome prior to graduation and new student orientation continues to be a focus of the Office of Sustainability. Every July, the Office of Sustainability staff help train orientation leaders to equip them with the most accurate information on sustainability programs and offerings. The Office of Sustainability also sets up an informational table at Gobblerfest, the premier festival to introduce students to community, clubs, and other organizations on campus in the fall.

Green Engineering Program

The Charles Edward Via, Jr. Department of Civil and Environmental Engineering offers an undergraduate program that facilitates development of critical analytical abilities and the necessary core of knowledge and skills for entry into the civil engineering profession or graduate studies. This body of knowledge includes the scientific procedures for formulating and testing theories and the procedures for applying theory to enhance welfare through engineering analysis, synthesis, and design. The civil engineer plays a key role in the design, construction, maintenance, and management of society's physical infrastructure, including transportation and communication systems, structural facilities for housing human activities, water resource management systems, natural resource development systems, and facilities and programs for environmental protection. The Bachelor of Science program in Civil Engineering is accredited by the Engineering Accreditation Commission of ABET.

Students are progressively exposed to civil engineering design, culminating in a focused design course experience. The projects assigned in design courses are open-ended, incorporate appropriate engineering standards, and require the application of knowledge from earlier courses in the curriculum. Projects apply technical knowledge to design appropriate physical facilities, but also include consideration of non-technical constraints that confront real-world projects. These additional considerations include such interdisciplinary issues as economics, environmental impact, and sustainability. Accordingly, teamwork and good professional communication skills are a significant part of each design project course experience.

The Green Engineering Program at Virginia Tech serves as the focal point of the College of Engineering for considering the environmental impacts of the design, manufacture, and use of engineered products, processes, and systems across all engineering disciplines. In this capacity, the program:

- Develops courses and other educational opportunities for students and faculty to learn how engineering fundamentals can be applied to minimize environmental impacts in all engineering disciplines across life cycles.
- Facilitates the interdisciplinary collaboration of Virginia Tech engineering faculty with each other, government, industry, and other academic institutions in the research and development of innovative green engineering technologies.
- Promotes dialogue and collaboration of faculty, staff, and students with local, state, national, and global citizens and communities on issues related to green engineering and sustainability.

The Green Engineering Program at Virginia Tech will serve as a catalyst for the organic growth of sustainable systems engineering concepts throughout the College of Engineering and other academic units. It will be recognized both within the university and across the United States as an interdisciplinary center of excellence in the education of undergraduate and graduate engineers regarding environmental impacts of engineering practice.

Undergraduate Student Intern Program

As mentioned previously, the Office of Sustainability continues to develop and refine an award-winning student internship program that has been operating for ten years. The program offers 20 students the opportunity to research, coordinate, and implement various sustainability projects that range from outreach to operational changes on campus. Students partner with Virginia Tech Career Services to take part in a Cooperative Education and Internship Program (CEIP 3084) where they receive professional development with a mentor on a sustainability topic. The class is reflected on the student's official transcript and they learn valuable skills to give them a head start in their chosen career. Some examples of projects that interns have worked on from the academic year include Sustainability Week, a campus-wide bike census, design and creation of a water exhibit at a local children's museum, development of a database for labeling of purchased goods through Dining Services as local or sustainable, creating a Zero Waste Event Guide, and posting updated signage about recycling on campus.

Campus as a Living Learning Community

All of the items mentioned above, including Dining Services/Residence Life programming around sustainable living, help to create a Living Learning Community (LLC) or "laboratory" for students to experience while they attend Virginia Tech. Students are given the opportunity to see and experience how sustainability is woven into every aspect of their life on campus including buildings, energy, air, dining, waste, water, transportation, and many more. Some specific examples include:

- Tours of the campus co-generation steam plant;
- Class tours of building mechanical systems in LEED buildings;
- Alternative Transportation tours and bike maintenance workshops;
- The Dining Services Farm allows students hands-on experience growing food for campus;
- Multiple presentations by Office of Sustainability staff to classes and the broader campus community on sustainability programs;
- On-campus recycling and composting programs; and
- Dining Services' "Pop-up Stands" in dining halls throughout the academic year.

Sustainability Forum

Sustainability Week

In 2007, Virginia Tech, the Town of Blacksburg, local citizen group Sustainable Blacksburg formed a "Green Partnership" and launched what has become the flagship sustainability outreach program, Sustainability Week. The goal was to plan a program to help the community live a more sustainable lifestyle through practical applications, workshops, presentations, tours, fairs, and guest speakers. Sustainability Week 2007 far exceeded expectations and received a 2008 Governor's Environmental Excellence Bronze Award. Sustainability Week has been held during the third week in September consistently for the past 14 years.

EVENTS FROM 2019 SUSTAINABILITY WEEK INCLUDED:

- Blacksburg Bike Parade
- Documentary Screening at the Lyric Theater
- Electric Car Display
- Sustainable Brewery Tour of Rising Silo
- Active Commute Celebration
- Yoga and Tai Chi at Hahn Garden
- Sustainable Bike Tour
- Lightning Talks
- Stadium Woods Tours
- National Geographic Live - Coral Kingdoms and Empires of Ice at the Moss Arts Center
- Sustainability Open Forum: Discussing Past Progress and Future Opportunities

Point 13: Virginia Tech will Monitor Energy Use and GHG Emissions

"Virginia Tech will monitor energy use and GHG emissions as well as changing internal and external conditions, prepare an annual 'report card' showing progress towards targets, and periodically re-evaluate targets, making adjustments to targets as appropriate based on changing internal and external conditions and evolving technologies."

The Office of Energy Management and the Office of Sustainability monitor and report campus emissions data through this publication each year. Refer to Virginia Tech Climate Action Commitment Point #3 for detailed energy use and GHG emissions data. Also, the Office of Sustainability updates their campus STARS report every three years in order to evaluate sustainability in all areas of the university setting. Previous annual reports may be found at facilities.vt.edu/sustainability/sustainability-reports.

The Office of Energy Management is in the process of proposing a new plan which, upon approval, will focus better on GHG accounting, a new energy action plan with identified pathways for energy reduction, improvements with energy efficiency at the building level, a development of a renewable energy portfolio, and a look at climate justice impacts in the community.

One focus of the aforementioned Climate Action Commitment revision working group is to expand the scope of Virginia Tech's current greenhouse gas emissions inventory process to include leased spaces and other previously excluded areas under Virginia Tech's authority. This will allow for more accurate tracking of GHG emissions. Additionally, the working group is looking into the possibility of using the Sustainability Indicator Management and Analysis Platform (SIMAP) to provide third party verification of greenhouse gas emissions to provide further reporting accuracy. Increased accuracy will allow Virginia Tech to make better plans to reduce and offset these emissions.

Point 14: Virginia Tech will Fund Sustainability Programs

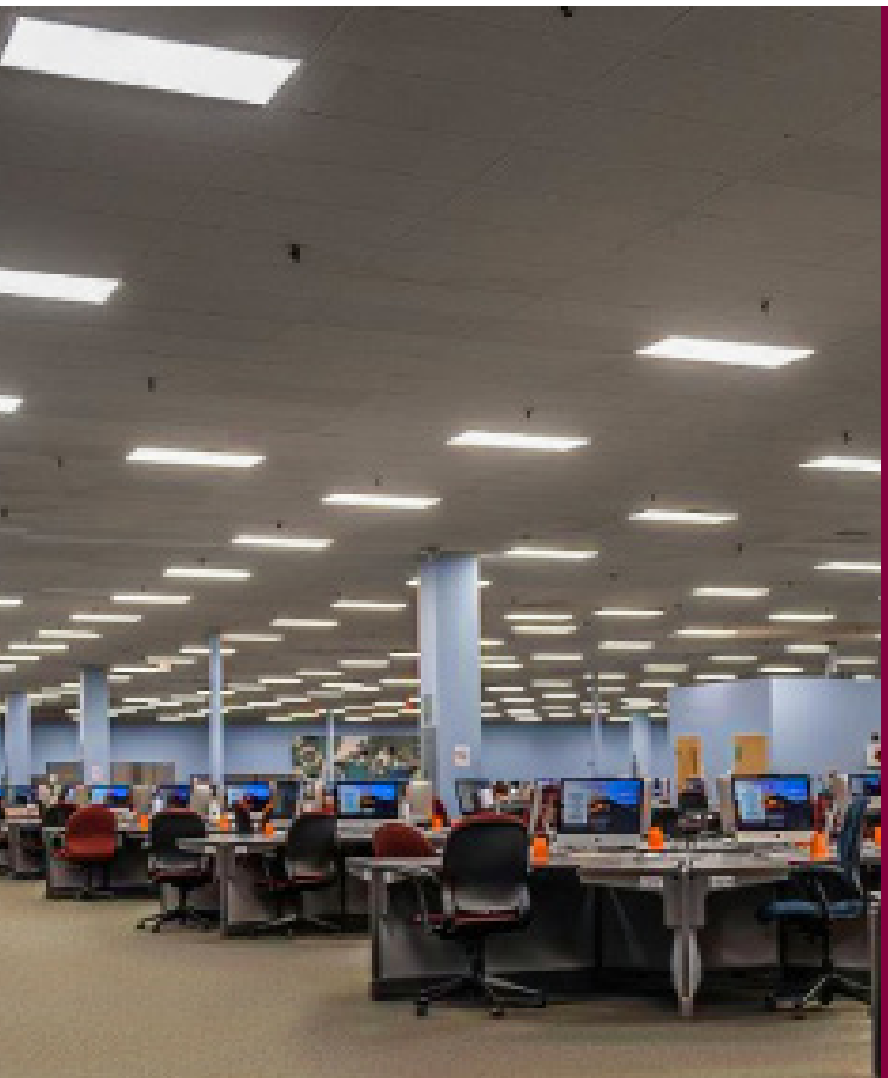
"Virginia Tech will work to provide funding to support sustainability programs. With regard to all the items in this resolution, major personnel and investment decisions, including capital projects, associated with implementing the Virginia Tech Climate Action Commitment and Sustainability Plan will be based on a joint review of costs and benefits by university financial and facilities staff and be subject to availability of funds."

Green Request for Proposals Program

Since 2010, student-generated campus sustainability projects have spurred over $1 million in energy-efficient upgrades across the Virginia Tech campus. Each fall, through the award-winning Green RFP Program, the Office of Sustainability seeks proposals from student groups for campus sustainability projects that support Virginia Tech's Climate Action Commitment. Submitted proposals are reviewed by the Office of Sustainability and submitted to the university Energy and Sustainability Committee for consideration. The committee prioritizes the proposals and forwards their recommendations to the Office of Budget and Financial Planning for further review, approval, and funding consideration.

The Office of Sustainability received 57 student proposals in fall 2019. Of those proposals, 19 were selected to move forward to be reviewed by the Budget Office. These 19 proposals came from 14 student organizations with funding totaling $286,000. Of the 19 proposals, nine pertain to energy; four pertain to water; two pertain to dining; one pertains to stormwater management; one pertains to landscaping; one pertains to alternative transportation; and one pertains to waste. Due to COVID-19, the status of approving funding for these proposals is on hold.

For more information on the Green RFP or to see projects funded prior to 2019, please refer to facilities.vt.edu/sustainability/sustainability-programs/green-rfp-program.



Math Emporium Renovations

As a result of a 2018-19 Green RFP, the Math Emporium underwent some renovations during the 2019-2020 academic year. More than 300 energy-efficient LED light fixtures and HVAC controls modifications were installed in the Math Emporium. $194,000 was allocated toward the improvements. Prior to the new changes, the Math Emporium main floor lights came on at once and stayed on 24/7. Newly installed independent control zones with dimming capabilities will help enhance energy conservation during periods of inactivity. The previous halide lights were replaced with LED lights. Due to these changes, the Math Emporium will save approximately 771,000 kWh of energy and $74,000 annually. More information on these renovations can be found at vtnews.vt.edu/articles/2020/02/ops-mathemporiumLEDs.

VIRGINIA TECH 2020 CLIMATE ACTION COMMITMENT WORKING GROUP

In late 2019 – prompted by the demands of students and other community members involved in Climate Strikes and resolutions from the Faculty and Staff Senates, Student Government Association, and Graduate Student Assembly – President Tim Sands and Senior Vice President and Chief Business Officer Dr. Dwayne Pinkney established a Climate Action Commitment Working Group comprised of 26 faculty, students, staff, and community members. They selected Professor Randolph to serve as chair of the Climate Action Commitment Working Group and he was ideal for this role having spearheaded the 2009/2013 Climate Action Commitment. In announcing the creation of the Working Group, President Sands stated, "Climate change presents one of the world's most pressing problems...and Virginia Tech has a duty to respond."

The Group was charged to assess the university's progress in implementing the 2009/2013 Virginia Tech Climate Action Commitment, compare Virginia Tech's experience to peer institutions, and develop a new Commitment. While the university has made tremendous strides with advancing sustainability on campus, a decade later it fails to prescribe what climate scientists recognize as necessary actions and also falls short of many peer universities' recent initiatives.

From January to June 2020, the Virginia Tech Climate Action Commitment Working Group executed its charge to evaluate the university's current position and our future role in addressing climate change. During this same period, the global pandemic COVID-19 brought unprecedented hardship and suffering, particularly for the most vulnerable among us. Nevertheless, this unique time is engendering a tremendous spirit of innovation and collaboration. Around the world, people are coming together to address historic challenges. Individuals are becoming bolder and more creative. Every aspect of our lives is being reimagined.

In order to engage a broad range of expertise and perspectives from across the university and wider community and conduct an ambitious work program, the Working Group created 12 Subcommittees having a total of 130 personnel including faculty, staff, students and members of the local community to investigate and discuss specific issues relevant to the commitment. Most of the subcommittees met weekly from early February through the end of May.

THE 12 SUBCOMMITTEES WERE TITLED:

- Agriculture, Forestry, and Land Use
- Budget and Finance
- Buildings Opportunities
- Climate Justice
- Community Engagement
- Energy Opportunities
- Greenhouse Gas (GHG) Inventory
- Peer Institutions Comparison
- Renewables Opportunities
- Structuring Sustainable Choices
- Transportation Opportunities
- Waste-Recycling-Composting and Procurement

The Working Group developed several mechanisms to expand community involvement in the process, including a website and email address for comment and two online surveys. Plans for face-to-face town hall meetings and conference sessions had to be reimagined when the university shut down after spring break. In place of the in-person events, the Working Group hosted 12 Zoom Convening sessions in April, attended by over 220 participants who provided excellent feedback. In anticipation of the Convening sessions, the Working Group and its subcommittees also developed ten creative videos that described the Climate Action Commitment proposals.

The Working Group focused on developing effective strategies the university can advance to achieve meaningful climate action. Throughout the multitude of Working Group, subcommittee, and community Zoom meetings, discussions reflected on the important opportunity for Virginia Tech to reinvent itself, not only in its commitment to climate action, but also in its responsiveness to the needs of the world around us, in the spirit of Virginia Tech's motto, *Ut Prosim - That I May Serve*.

The Working Group developed the draft Virginia Tech 2020 Climate Action Commitment recommending the following vision, mission statement, and 15 goals:

VISION OF THE VIRGINIA TECH 2020 CLIMATE ACTION COMMITMENT:

"In the spirit of Ut Prosim, Virginia Tech will be a leader in climate action in service to our community, the Commonwealth, and the world."

MISSION OF THE VIRGINIA TECH 2020 CLIMATE ACTION COMMITMENT:

"The mission of the Virginia Tech 2020 Climate Action Commitment is to achieve carbon neutrality by changing our physical infrastructure, collective and individual behaviors, and educational mission; to engage everyone in creating a culture of sustainability; and to achieve these objectives through just and equitable means."

Virginia Tech 2020 Climate Action Commitment goals:

1. Carbon neutral Virginia Tech campus by 2030.
2. 100 percent renewable electricity by 2030.
3. Complete the total conversion of steam plant fuel to natural gas by 2025, plan for full transition to renewable steam plant fuel after 2025, and continue to improve efficiency of campus energy systems.
4. Reduce building energy consumption to enable carbon neutrality by 2030.
5. Operations of new buildings initiated by 2030 will be carbon neutral.
6. Agricultural, forestry, and land use operations will be carbon neutral by 2030.
7. Virginia Tech to become a Zero-Waste Campus by 2030.
8. Establish the Sustainable Procurement Policy and Procedures by 2022.
9. Reduce single-occupancy-vehicle commuting to campus by 20 percent by 2025 and reduce transportation-related GHG emissions by 40 percent by 2030.
10. Integrate the Climate Action Commitment into Virginia Tech's educational mission through the Climate Action Living Laboratory beginning in 2021.
11. Establish climate justice as a core value of the Virginia Tech Climate Action Commitment.
12. Diminish barriers to sustainable behaviors through institutional change, education and social marketing
13. Implement the Virginia Tech Climate Action Commitment at a high level of university administration and governance; by integrating goals for facilities, education, and campus culture; and with stakeholder engagement for evaluation of goals and progress.
14. Develop innovative budgeting and financing mechanisms to generate finding and staffing to achieve Climate Action Commitment goals.
15. Develop Pathways after 2030 to eliminate fossil fuels and carbon offsets by 2050.

For each of the 15 goals the document includes potential pathways to achieve them. At the heart of the revised Climate Action Commitment is the goal of achieving carbon neutrality by 2030. The Working Group's recommendations are bold, aggressive, and comprehensive. Its goals range from necessary upgrades to the campus physical plant to reduce GHG emissions, to integrating those improvements into the educational mission through a Climate Action Living Laboratory, to engaging everyone in creating a culture of sustainability – all to position Virginia Tech as a leader as the clean energy economy evolves in the Commonwealth and the world.

On July 15, 2020, the Virginia Tech 2020 Climate Action Commitment Working Group Final Report - 2020 was successfully presented by Professor Emeritus John Randolph to Senior Vice President and Chief Business Officer Dr. Dwayne Pinkney. The recommendations were placed in a resolution format. The Commission on University Support Resolution 2020-21A, Resolution to Approve the Virginia Tech 2020 Climate Action Commitment is currently under review by university governance for presentation to the Virginia Tech Board of Visitors in November 2020.

For the Virginia Tech 2020 Climate Action Commitment Final Report - July 2020 see the Appendix.

CONCLUSION

Virginia Tech continues to demonstrate its commitment to being a leader in campus sustainability by making significant progress in every component of a university-wide climate action commitment. Infrastructure upgrades, highlighted by the conversion to natural gas as the university's primary fuel source, has resulted in a measurable increase in energy efficiency and a decrease in greenhouse gas emissions. The university has completed the fifth year of its Five-Year Energy Action Plan and is making plans for a 10-Year Energy Action Plan to continue to make strides in the reduction of energy consumption on campus over the next decade.

During 2019-20, Virginia Tech received numerous awards and recognition at the national and state levels. The university received 2020 Tree Campus USA Reaccreditation from the National Arbor Day Foundation which marks our 12th consecutive year. The university's Sustainability Tracking, Assessment, and Rating System (STARS) Gold Rating from the Association for the Advancement of Sustainability in Higher Education rates the university near the top of all institutions in the Commonwealth of Virginia and the Atlantic Coast Conference, and directly contributed to our being featured in the 2019 Princeton Review's Guide to Green Colleges and maintained a top 25 percent ranking in the 2020 Sierra Club's list of Cool Schools. Since 2008, the university has received nine GEEA awards.

Dining Services has consistently been recognized as having one of the best food programs (if not the best) in the country, and they continue to strive to be one of the best sustainable dining programs too. Virginia Tech is nationally recognized as a bike friendly university and best workplace for commuters.

The university's strategic plan, The Virginia Tech Difference: Advancing Beyond Boundaries, features the Virginia Tech Climate Action Commitment. Beyond Boundaries 2047: The campus Plan, integrates the facilities and infrastructure required to support the new strategic plan, and it received a 2019 Society for College and University Planning Excellence in Planning for an Existing Campus Merit award.

The conversion to natural gas and improved energy efficiency has resulted in a significant reduction in our greenhouse gas emissions, and in 2019, the university achieved emissions below the interim 2025 goal of 255,000 tons of CO_2 for the first time, and five years early. To continue this downward trend the university will pursue renewable energy options and opportunities.

Virginia Tech continues to expand our robust new construction and major renovation program. The university has 36 LEED-registered projects with the US Green Building Council, which represents over 3.1 million Gross Square Feet of the built environment.

The university has a single stream recycling system and our goal is to achieve a 50 percent recycle rate as soon as possible. For CY2019, Virginia Tech achieved a 40 percent recycling rate and an 80 percent waste diversion rate (waste kept out of the local landfill). The university's recycling rate trend line continues upward due in large measure to our strong food waste composting partnership with Royal Oak Farm (ROF). ROF has the only DEQ permitted composting facility west of Charlottesville.

Sustainability procurement is a primary component of University Policy 5505: Campus Energy, Water and Waste Reduction. The director of procurement and the Energy and Sustainability Committee (university governance system) has developed a new sustainable procurement policy which is now in effect. The new policy requires purchasing decisions to embody the university's commitment to sustainability whenever possible.

The Division of Campus Planning, Infrastructure, and Facilities has maintained its commitment of having the university infrastructure serve as a learning laboratory platform for our students, faculty, and staff so as to enhance learning and research. Student internship opportunities are numerous and appreciated for the value they have for all involved. The Office of Sustainability's award-winning Student Internship Program had 20 participants consisting of four teams (Energy, Water, Food, and Waste Management) with five students assigned working on real-world campus issues.

Sustainability at Virginia Tech is a partnership with its colleges, departments, units, students, and the Blacksburg community. It represents a Town-Gown model for the Commonwealth of Virginia and the U.S. At the end of the day, all Hokies are sustainability champions with a goal of making Blacksburg a Special Sustainable Place.

The Office of Sustainability has been producing Sustainability Annual Reports since 2010. For access to all prior reports, visit facilities.vt.edu/sustainability/sustainability-reports/virginia-tech-sustainability-annual-reports.

ACKNOWLEDGEMENTS

2019-20 SUSTAINABILITY ANNUAL REPORT PREPARED BY THE OFFICE OF SUSTAINABILITY:

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WITH SPECIAL THANKS TO:

Professor Emeritus, John Randolph, Chair of the VT 2020 Climate Action Commitment Working Group and the members of the working group. Also, the many units within the Virginia Tech community.

APPENDIX

1. **Virginia Tech Climate Action Commitment Presidential Policy No. 262**
   Revision 1, dated May 9, 2013

2. **Virginia Tech 2020 Climate Action Commitment Working Group Final Report**
   bit.ly/VT2020CACFR

3. **Virginia Tech LEED Program Summary**
4. **Virginia Tech Design and Construction Standards Manual**
   facilities.vt.edu/planning-construction/design-and-construction-standards
   a. Section 1.2.5 Sustainability
   b. Section 1.2.5.1 Sustainable Design
   c. DCSM Understanding and Using the Standards - Training Presentation Slides

5. **Calendar Year 2019 Recycling Rate Report for Virginia Tech**

6. **Virginia Tech Sustainable Procurement Policy**

7. **Alternative Transportation Program Brochure, “No Car, No Problem”**

8. **2019-20 Student Green RFP Memorandum**

Charles W. Steger, President
201 Burruss Hall (0131)
Blacksburg, Virginia 24061
540-231-6231 Fax: 540-231-4265
www.president.vt.edu president@vt.edu

Presidential Policy Memorandum No. 226

Revision 1

TO: All Virginia Tech Employees and Students

FROM: Charles Steger

DATE: May 9, 2013

SUBJECT: Update to the Virginia Tech Climate Action Commitment

Approved by the Commission on University Support:	April 18, 2013
Approved by the University Council:	May 6, 2013
Approved by the President:	May 6, 2013
Effective Date:	Upon Approval by the President

University Council approved a resolution regarding an update to the Virginia Tech Climate Action Commitment

Following is the text of the resolution.

WHEREAS, the Virginia Tech Climate Action Commitment (VTCAC) was approved by the Board of Visitors on June 1, 2009; and

WHEREAS, the initial phase (2009-2012) of the VTCAC implementation plan has elapsed; and

WHEREAS, the Energy & Sustainability Committee (E&SC) established a subcommittee in the spring of 2012 to review the language of the VTCAC and recommend changes; and

WHEREAS, the E&SC subcommittee recommended several updates, as outlined in the attached; and

WHEREAS, the full E&SC has reviewed and recommended the proposed changes to the VTCAC for University Council approval;

THEREFORE LET IT BE RESOLVED, that the Virginia Tech Climate Action Commitment be amended as follows:

1. Virginia Tech will be a Leader in Campus Sustainability. Sustainability is an integral part of the fabric of the university as it pursues enhanced economic stability and affordability, diversity and inclusion, environmental stewardship, expansion of knowledge, and education of future leaders.

2. Virginia Tech will represent the VTCAC&SP in the university's Strategic Plan.

3. Virginia Tech will establish a target for reduction of campus GHG emissions to 80% below 1990 emission level of 188,000 tons by 2050. Interim targets from 2006 emissions of 316,000 tons will be: for 2012, 295,000 tons (on path to 2025 target); for 2025, 255,000 tons (2000 emission level); and for 2050, 38,000 tons (80% below 1990 emission level).

4. Virginia Tech will work toward these emission reduction targets through improved energy efficiency, reduction of energy waste, replacement of high-carbon fuels, and other measures identified in the VTCAC&SP.

5. Virginia Tech will maintain a sustainability office to:
   a. Coordinate programs for campus sustainability,
   b. Oversee implementation of the VTCAC&SP,
   c. Monitor annual electricity and other energy use and GHG emissions, and
   d. Working with faculty and departments, manage a campus-wide student internship and undergraduate research program using the campus as a sustainability laboratory, and
   e. Coordinate communication regarding campus sustainability initiatives and programs to the university community and external audiences.

6. Virginia Tech will improve the sustainability of its built environment by:
   a. Achieving LEED Silver certification or better for all eligible and applicable new buildings and major renovations.
   b. Evaluating the feasibility of LEED for Existing Buildings certification for its existing buildings.

7. Virginia Tech will improve electricity and heating efficiency of campus facilities and their operations by:
   a. Exceeding the most current version of ASHRAE 90.1 energy performance by 10% for all new buildings and major renovations. Capital budgets should account for future energy price, life cycle cost of building operation, and environmental benefits of achieving this level of performance.
   b. Improving the heating and cooling infrastructure and operation, lighting efficiency, equipment efficiency, and metering and controls of its existing buildings.

8. Virginia Tech will minimize waste and achieve a 50% recycle rate by 2020.

9. Virginia Tech will:
   a. Require purchase or lease of Energy Star rated equipment and maximum practicable recycled content paper, in accordance with University Policy 5505 with exceptions for special uses
   b. Consider a product's life cycle cost and impact when making purchasing decisions.

10. Virginia Tech will engage students, faculty, and staff through education and involvement to develop and implement innovative strategies for efficient and sustainable use of energy, water, and materials in all university-owned facilities.

11. Virginia Tech will improve transportation energy efficiency on campus through parking, fleet, and alternative transportation policies and practices. The university will continue to implement programs that encourage the use of alternative transportation methods and will continue to implement programs and services that promote eco-responsible fleet management.

12. Virginia Tech will continue to develop and implement innovative sustainability-related academic programs in instruction, research, and outreach, and will coordinate and communicate these programs to the university community and external audiences.

13. Virginia Tech will monitor energy use and GHG emissions as well as changing internal and external conditions, prepare an annual 'report card' showing progress towards targets, and periodically re-evaluate targets, making adjustments to targets as appropriate based on changing internal and external conditions and evolving technologies.

14. Virginia Tech will work to provide funding to support sustainability programs. With regard to all the items in this resolution, major personnel and investment decisions, including capital projects, associated with implementing the VTCAC&SP will be based on a joint review of costs and benefits by university financial and facilities staff and be subject to availability of funds

Virginia Tech Sustainability Definition, Vision, & Mission:

Sustainability Definition:

Sustainability is the simultaneous pursuit of environmental quality, economic prosperity, and social justice and equity, through action, education, and engagement to address current needs without compromising the capacity and needs of future generations.

Sustainability Vision:

Virginia Tech serves as a model community for a sustainable society. Sustainability is an integral part of the fabric of the university as it pursues enhanced economic stability and affordability, diversity and inclusion, environmental stewardship, expansion of knowledge, and education of future leaders.

Sustainability Mission:

The pursuit of sustainability is achieved through Virginia Tech's administration; physical environment and operations; student life and experience; campus culture and behavior; and academic learning, discovery, and engagement.

Acronyms:

ASHRAE – American Society of Heating, Refrigerating and Air Conditioning Engineers
GHG – Greenhouse Gas
LEED – Leadership in Energy and Environmental Design
VTCAC&SP - Virginia Tech Climate Action Commitment & Sustainability Plan

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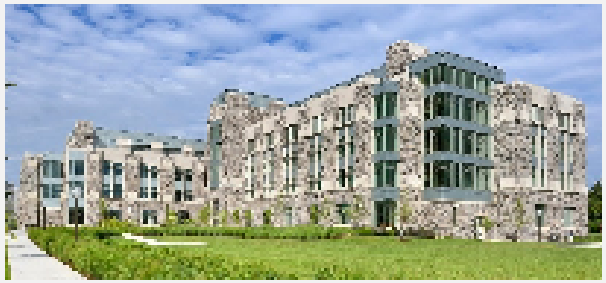
VIRGINIA TECH
LEED PROGRAM SUMMARY



GOODWIN HALL – LEED GOLD
Academic Building - (GSF 154,935)

MOSS ARTS CENTER – LEED GOLD
Center for the Arts – (GSF 147,382)

	Number of Buildings	Gross Sq. Ft. (GSF)
❑ Projects Completed:		
✓ LEED Certification - *Attained*	17	1,374,620
▪ LEED Certification - *Pending*	7	236,582
❑ Projects under Construction:		
▪ LEED *Registered*	1	491,126
❑ Projects under Design:		
▪ LEED *Registered*	1	439,106
▪ *LEED Registration Pending:*	4	592,500
❑ Total:	36	3,133,934

AMBLER JOHNSTON HALL – LEED GOLD
Residence Hall (GSF 269,463)

OFFICE OF SUSTAINABILITY
DIVISION OF CAMPUS PLANNING,
INFRASTRUCTURE & FACILITIES

VIRGINIA TECH

HUMAN & AGRICULTURAL BIOSCIENCES BUILDING I – LEED GOLD
Research Building (GSF 93,860)

VIRGINIA TECH LEED BUILDINGS STATUS - 2020-08-26

PROJECTS COMPLETED - LEED CERTIFICATION ATTAINED

PROJECT	PROJECT #	BUDGET	GSF	CONSTRUCTION START	OCCUPANCY DATE	STATUS	LEED CERTIFICATION	DATE OF CERTIFICATION
Henderson Hall Renovation & Theatre 101 Addition	208-16758-001	$15,838,792	38,750	2/18/2008	8/14/2009	Complete	Gold	2/1/2010
Football Locker Room Addition	208-L00016-000	$14,004,621	42,145	7/8/2009	6/21/2011	Complete	Silver	10/1/2011
Institute for Critical Technology & Applied Science - Phase II	208-17291-000	$34,587,710	42,190	4/8/2009	4/6/2011	Complete	Gold	11/1/2011
Visitors & Undergraduate Admissions Center	208-L00012-000	$10,338,192	18,155	3/23/2010	8/29/2011	Complete	Certified	8/1/2012
Lavery Hall	208-17859-000	$44,302,610	77,301	7/29/2010	9/5/2012	Complete	Silver	4/1/2013
Vet Med Instructional Addition	208-17859-000	$12,343,316	24,600	7/26/2011	11/5/2012	Complete	Silver	6/1/2013
Ambler Johnston Hall	208-17557-000	$66,968,679	269,463	5/26/2009	6/25/2012	Complete	Gold	11/1/2013
Chiller Plant Phase I (Southwest Chiller Plant)	208-17657-000	$20,097,729	16,655	3/22/2012	6/14/2013	Complete	Silver	11/1/2013
Moss Arts Center	208-16758-002	$100,087,000	147,382	8/10/2010	8/21/2013	Complete	Gold	5/1/2014
Total GSF:			676,641					

VIRGINIA TECH LEED BUILDINGS STATUS - 2020-08-26

PROJECTS COMPLETED - LEED CERTIFICATION ATTAINED

PROJECT	PROJECT #	BUDGET	GSF	CONSTRUCTION START	OCCUPANCY DATE	STATUS	LEED CERTIFICATION	DATE OF CERTIFICATION
Human & Agricultural Biosciences Building I	229-17681-000	$53,759,344	93,860	12/22/2011	3/10/2014	Complete	Gold	4/17/2015
Indoor Athletic Training Facility	208-17296-000	$21,300,000	91,600	4/23/2014	6/25/2015	Complete	Silver	10/5/2015
Goodwin Hall	208-17658-000	$95,218,249	154,935	9/13/2011	5/29/2014	Complete	Gold	10/28/2015
Davidson Hall	208-17662-000	$32,003,099	44,845	2/17/2012	6/8/2014	Complete	Certified	3/11/2016
Pearson Hall East	208-L00031-000	$45,500,000	111,191	10/14/2013	1/24/2017	Complete	Silver	12/16/2016
Oak Lane Phase IV	208-L00021-002	$5,132,300	20,508	8/29/2011	1/4/2013	Complete	Silver	10/4/2017
Pearson Hall West	208-L00031-000	$45,000,000	108,765	10/14/2013	4/27/2017	Complete	Silver	6/1/2018
Classroom Building	208-17995-000	$40,851,740	72,275	1/26/2015	8/17/2016	Complete	Silver	8/12/2020
Total GSF: (Page 3)			**697,979**					
Total GSF: (Page 2)		**+**	**676,641**					
Total GSF:			**1,374,620**					

VIRGINIA TECH LEED BUILDINGS STATUS - 2020-08-26

PROJECTS COMPLETED - LEED CERTIFICATION PENDING

PROJECT	PROJECT #	BUDGET	GSF	CONSTRUCTION START	OCCUPANCY DATE	STATUS	LEED CERTIFICATION	DATE OF CERTIFICATION
Rector Field House	208-L00037-001	$18,595,000	43,949	12/1/2016	2/3/2018	Complete	Silver	Pending
Baseball Facilities Improvements	208-L00037-002	$18,496,000	49,872	2/1/2017	2/3/2018	Complete	Silver	Pending
O'Shaughnessy Hall Renovations	208-L00044-000	$21,593,211	69,200	5/17/2017	8/1/2018	Complete	Silver	Pending
Sandy Hall	208-18065-000	$30,563,000	19,889	1/4/2017	5/1/2019	Complete	Silver	Pending
Liberal Arts Building	208-18065-000	(see above)	15,394	1/4/2017	5/1/2019	Complete	Silver	Pending
Davidson Hall	208-18065-000	(see above)	25,151	1/4/2017	5/1/2019	Complete	Silver	Pending
Undergraduate Science Laboratories - Renovations	208-L00046-000	$600,000	13,127	10/15/2018	10/14/2019	Complete	Silver	Pending
Total GSF:			**236,582**					

VIRGINIA TECH LEED BUILDINGS STATUS - 2020-08-26

PROJECTS UNDER CONSTRUCTION - LEED REGISTERED

PROJECT	PROJECT #	BUDGET	GSF	CONSTRUCTION START	OCCUPANCY DATE	STATUS	LEED CERTIFICATION	DATE OF CERTIFICATION
VT Carillion Biomedical Research Expansion	208-18269-000	$85,574,000	139,586	2/5/2018	4/20/2020	Construction	Silver	N/A
Student Athlete Performance Center	208-L00056-000	$16,681,500	25,800	8/8/2019	1/31/2021	Construction	Silver	N/A
Creativity & Innovation District Living Learning Community	208-L00060-000	$105,500,000	224,500	3/4/2019	6/15/2021	Construction	Silver	N/A
Holden Hall Renovation	208-18267-000	$73,500,000	101,240	8/15/2019	10/29/2021	Construction	Silver	N/A
Total GSF:			491,126					

VIRGINIA TECH LEED BUILDINGS STATUS - 2020-08-26

PROJECTS UNDER DESIGN - LEED REGISTERED

PROJECT	PROJECT #	BUDGET	GSF	CONSTRUCTION START	OCCUPANCY DATE	STATUS	LEED CERTIFICATION	DATE OF CERTIFICATION
Student Wellness Improvements	208-18357-000	$58,000,000	263,000	12/11/2019	8/18/2021	Design	Silver	N/A
Undergraduate Science Laboratories - New Construction	208-18332-000	$74,800,000	102,000	3/27/2020	1/17/2022	Design	Silver	N/A
Multi-Modal Transit Facility	CP-2029	$38,000,000	13,606	5/18/2020	5/23/2022	Design	Silver	N/A
Corps Leadership & Military Science Building	208-L00043-000	$40,000,000	60,500	8/2/21	7/3/2023	Design	Silver	N/A
Total GSF:			439,106					

PROJECTS UNDER DESIGN - LEED REGISTRATION PENDING

PROJECT	PROJECT #	BUDGET	GSF	CONSTRUCTION START	OCCUPANCY DATE	STATUS	LEED CERTIFICATION	DATE OF CERTIFICATION
Hitt Hall & New Dining Facility	208-L00049-000	$68,000,000	112,000	7/1/2020	7/1/2022	Design	*Silver (Pending)	N/A
Data & Decision Sciences	208-18427-000	$79,000,000	120,000	7/31/2020	7/28/2022	Design	*Silver (Pending)	N/A
Global Business & Analytics Complex R esidence Halls	208-L00063-000	$84,000,000	60,500	12/10/2020	7/11/2023	Design	*Silver (Pending)	N/A
Innovation Campus Academic Building	208-18412-000	$275,000,000	300,000	8/1/2021	2/1/20204	Design	*Silver (Pending)	N/A
Total GSF:			592,500					

1.2.5E Sustainability

Per the latest revision of the Presidential Policy Memorandum No. 262, the Virginia Tech Climate Action Commitment (VT CAC), Virginia Tech will be a leader in campus sustainability and programs to achieve sustainability goals will be represented in the University's Strategic Plan. Innovations in construction and building design have raised the benchmark for certification standards for buildings since 2013. The VT Facilities Department will strive to incorporate a maximum amount of sustainability improvements to honor the VT CAC to the limits of affordability for each design project.

The University is committed to the principles of energy conservation. All designs shall strive to maximize energy efficiency, and comply with the energy conservation requirements contained in these standards and Campus Energy, Water, and Waste Reduction Policy – No. 5505.

1.2.5.1E Sustainable Design

In order to incorporate sustainable design solutions in new construction and renovation projects, Virginia Tech has joined the U.S. Green Building Council (USGBC) and fully supports the principles of the LEED (Leadership in Energy and Environmental Design) Building Rating System. The pursuit of high performance green buildings that are energy efficient and environmentally sensitive will help to lower operating and energy costs, improve employee productivity, promote improved learning, and enhance the health, and wellbeing of the students, faculty and staff at Virginia Tech. All projects shall address sustainability as it relates to site issues, water, energy efficiency, materials and resources, and indoor air quality in accordance with the VT CAC.

In the early stages of design, the A/E shall strive to meet or exceed the minimum number of points needed for LEED certification under the rating system appropriate for the project in accordance with the VT CAC. The A/E shall determine the most cost effective means of achieving these points, and shall take full credit for points achieved through compliance with other University standards that address sustainability issues, such as building commissioning. The A/E shall submit for the University's review and approval a LEED Project Checklist, identifying the specific measures proposed to be incorporated into the project to achieve the target number of points. The A/E should consider the ParkSmart certification for projects involving parking garages.

1.2.5.2E Waste Management

Virginia Tech is a jurisdictional member of the Montgomery Regional Solid Waste Authority. All members transitioned to single stream recycling effective July 1, 2015.

To achieve the recycle rate goal stated in the VT CAC, Virginia Tech requires an appropriate number of waste stations, both outside and inside of our facilities. All recycling containers for new construction and major renovations must be able to accommodate single stream recycling.

1. Outside the Building:

    a. The design of the waste management serving area shall provide a concrete slab 26 feet wide by 14 feet deep to accommodate an 8 cubic yard single stream recycling container and another 8 cubic yard trash container placed side-by-side. It must provide an access route to accommodate an AASHTO WB-40 Design Vehicle. In order to accommodate this design vehicle during loading and unloading operations, a concrete road surface shall be placed along the entire 26-foot width of the concrete slab and extended outward and perpendicular a distance of 8 feet.

    b. Outdoor waste stations for personal use should consist of an appropriate number of pairs of containers placed side-by-side with one designated and labeled for “single stream recycling” and the other designated and labeled for “trash.” The containers must conform to our design standards for outdoor furnishings.

2. Inside the Building:

    a. Indoor waste stations shall consist of an appropriate number of pairs of non-combustible collection containers placed side-by-side with one designated and labeled for “single stream recycling” and the other designated and labeled for “trash.”

    b. Ideally containers will be recessed into the interior walls of the building so as to not protrude into the hallway space. If that is not possible the containers shall be placed on the floor and secured to the building structure to meet fire code.

    c. The quantity and design for indoor waste stations in residential buildings will vary. Coordinate with Student Affairs during the initial design.

Sustainability

DCSM section 1.2.5 addresses sustainability requirements and affirms the desire to maximize sustainability within the affordable limits of the project.

- Virginia Tech Climate Action Commitment (VT CAC) is contained in Presidential Policy Memorandum No. 262

  "Sustainability is the simultaneous pursuit of environmental quality, economic prosperity, and social justice and equity, through action, education, and engagement to address current needs without compromising the capacity and needs of future generations."

- Campus Energy, Water, and Waste Reduction Policy, VT Policy No. 5505
- LEED certification for new construction and major renovations
- A/Es encouraged to consider ParkSmart certification when parking garages are part of the project

Sustainability

Approved in 2009 and updated in 2013, the VT CAC contains 14 points and set several goals.

- Reduction targets for greenhouse gas emissions
- Monitor and improve electricity and other energy use efficiency (campus heating and cooling, lighting, and transportation)
- Use the campus as a "sustainability laboratory" for student internship and undergraduate research programs
- LEED Silver certification or better for construction projects
- Minimize waste; achieve 50% recycle rate by 2020
- Exceed ASHRAE 90.1 energy performance by 10% for all new buildings and major renovations

Sustainability

The Campus Energy, Water, and Waste Reduction Policy, VT Policy No. 5505, was approved in 2006 and last revised in 2016.

- Policy fully involves the CPIF Division and the VPCPIF must coordinate efforts with other university departments and outside regulatory agencies to develop and implement procedures.
- Construction of a new building that is greater than 5,000 GSF or the renovation of such a building with a cost that exceeds 50% of the value of the building shall follow the Commonwealth of Virginia (COV) energy conservation requirements (updated in DEB Notice 121510).
- COV requirements in DEB Notice 121510 listed three conservation options and VT is committed to LEED.

Sustainability

The Campus Energy, Water, and Waste Reduction Policy, VT Policy No. 5505 (continued)

- Design systems based on space use and occupancy to reduce energy costs; educate occupants to participate in energy savings
- Design systems to meet or exceed standards for Federal Energy Policy Act and EPA WaterSense requirements
- Minimize water use and waste by installing low-flow fixtures and landscaping that doesn't require frequent watering
- Recycle construction debris and materials when possible

LEED

- DCSM section 1.2.5.1 addresses the LEED building rating system.

  A/Es shall strive to meet or exceed the minimum number of points needed for LEED certification under the rating system appropriate for the project in accordance with the VT CAC.

- Emphasized from the beginning...

  A/Es are required to state their compliance with the VT CAC and the applicable version of the LEED checklist on the title sheets for the Schematic Drawings (2.5.2).

- ...to the end of the construction project.

  Systems based on the LEED goals of the project are commissioned by the university (1.8.3).

LEED

- VT CAC commitment to LEED
  - Achieve LEED Silver certification or better for all eligible and applicable new buildings and major renovations
  - Evaluate the feasibility of LEED certification for existing buildings
- Campus Energy, Water, and Waste Reduction Policy commitment to LEED

  All new buildings greater than 5,000 GSF or the renovation of such a building with a cost that exceeds 50% of the value of the building shall conform to the USGBC LEED Silver standards, consistent with the VT CAC
- VT LEED Program Summary
  - Compilation of construction projects and LEED certification levels attained or in progress
  - Summary is maintained by Capital Construction

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Commonwealth of Virginia Locality Recycling Rate Report For Calendar Year 2019

Contact Information

Reporting Solid Waste Planning Unit: Virginia Tech

Person Completing This Form: Dennis C. Cochrane

Title: Director, Office of Sustainability, Facilities Department

Address: Sterrett Center, (Mail Code 0529), 230 Sterrett Drive, Blacksburg, VA 24061

Office Phone Number: (540) 231-5184 **Email Address:** dennisce@vt.edu

Summary: Virginia Tech, the Town of Blacksburg, the Town of Christiansburg, and Montgomery County are the four jurisdictional members of the "Montgomery Regional Solid Waste Authority (MRSWA). Located in Christiansburg, VA, MRSWA operates a transfer facility that receives the majority of our principal recyclable materials (PRMs), and all of our municipal solid waste (MSW). Virginia Tech uses a "Single Stream" Recycling System. Recyclable materials are transported from the university to MRSWA, weighed, and further transported to "Recycling & Disposal Solutions (RDS)." RDS serves as the recycling "hub" for our region receiving materials from both the New River and Roanoke Valleys. Food waste is collected from our 11 on-campus dining facilities and stored at a central location in a 10 ton "sledge" container. When the container is full, "Royal Oak Farm (ROF)" transports it to their composting facility located in Evington, VA. Municipal Solid Waste is transported to MRSWA, weighed, and further transported to the local landfill operated by the "New River Resource Authority (NRRA)" in Pulaski County near Dublin, VA. MRSWA prepares a consolidated recycling rate report for our region to include the four jurisdictional members, and submits it to the Commonwealth of Virginia Department of Environmental Quality (DEQ). Virginia Tech uses this DEQ format to calculate our base recycling rate, our waste diversion rate, and our final recycling rate. **For Calendar Year 2019 Virginia Tech's recycling rate was 39% and waste diversion rate (percentage of waste kept out of the local landfill) was 80% (see DEQ formula on page 2).**

Data in this report was collected from our recycling and solid waste facilities and campus stakeholders. I certify that I have personally examined, and am familiar with, the information submitted in this form and any attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Dennis C. Cochrane — Director of Sustainability — March 18, 2020

Dennis C. Cochrane — Title — Date

PART A: Recycling Rate Calculation - Using the formulae provided below and the information reported on Pages 3, 4 and 5 to calculate your recycling rates.

Step 1: [(PRMs) / (PRMs + MSW Disposed)] X 100 = Base Recycling Rate %

2,031	/	2,031	+	3,976	X 100 =	33.8	%
TONS		TONS		TONS		Basic Recycling Rate (34%)	

Step 2: CREDITS calculation

a. Total Recycling Residue	0 tons
b. Total Solid Waste Reused	17 tons
c. Total Non-MSW Recycled	13,740 tons
CREDITS	13,757 tons

Step 3: [(PRMs + CREDITS) / (PRMs + CREDITS + MSW Disposed)] X 100 = Adjusted Recycling Rate *

2,031	+	13,757	/	2,031	+	13,757	+	3,976	X 100 =	79.9	%
TONS		TONS		TONS		TONS		TONS		Waste Diversion Rate (80%)	

Step 4: [ ] **Source Reduction Credit does not apply; or**

[X] **Adjusted Recycling Rate #1 + 2% SRP Credit = Adjusted Recycling Rate #2***

79.9	%	+ 2%	=	81.9	%

Step 5: Final Recycling Rate* for Solid Waste Planning Unit = 38.8 %

Final Recycling Rate (39%)

*** Total credits resulting from Steps 3 and 4 may not exceed 5 percentage points above the Base Recycling Rate achieved by the Solid Waste Planning Unit.**

Locality Recycling Rate Report **For Calendar Year 2019**
PART B: DATA

Part I: Principal Recyclable Materials (PRMs): Report only PRM material generated within the reporting SWPU and recycled, NOT imported PRMs for recycling.

PRM TYPE	RECYCLED AMOUNT (TONS)
Paper	319
Metal	193
Plastic	0
Glass	0
Commingled (also known as Single Stream)	430
Yard Waste (composted or mulched)	260
Waste wood (chipped or mulched)	175
White Goods	2
Tires	5
Used Oil	9
Used Oil Filters	1
Batteries	9
Electronics	7
Fluorescent Bulbs & Ballasts	13
Food Waste Organic – For Composting	566
Waste Cooking Oil	42
TOTAL PRMs	**2,031 (PRMs)**

(Enter Total on Page 2, Step 1)

Listing of sources for PRM data ***(consider only Virginia generated waste material)***

1. Permitted solid waste facilities from which MSW disposed/recycled data was collected:
   a. Department of Facilities: Office of Sustainability
   b. Department of Facilities: Operations (Buildings & Grounds)
   c. Department of Facilities: Capital Construction & Renovation)
   d. Department of Environmental Health & Safety
   e. Division of Student Affairs: Dining Services
   f. Division of Student Affairs: Housing & Residence Life
   g. Department of Parking & Transportation: Fleet Services
   h. Department of Human Resources
   i. Athletic Department

2. Other facilities/operations (not included in #1 above) from which MSW disposed/recycled data was collected:
   a. Montgomery Regional Solid Waste Authority (MRSWA)
   b. Y-toss Program –Partnership w/ VT and the YMCA at VT
   c. Campus Kitchen Program – VT Dining Services
   d.
   e.
   f.
   g.
   h.
   i.

Part II: Credits by Category (see Credits Worksheet, Page 5)

A. Recycling Residue – "Recycling residue" means the (i) nonmetallic substances, including but not limited to plastic, rubber, and insulation, which remain after a shredder has separated for purposes of recycling the ferrous and nonferrous metal from a motor vehicle, appliance, or other discarded metallic item and (ii) organic waste remaining after removal of metals, glass, plastics and paper which are to be recycled as part of a resource recovery process for municipal solid waste resulting in the production of a refuse derived fuel. (§ 10.1-1400 of the *Code of Virginia*) (use only SWPU generation)

MATERIAL DESCRIPTION	FACILITY/OPERATION	TONS OF MATERIAL
_____	from _____	_____
_____	from _____	_____
_____	from _____	_____
	TOTAL RECYCLING RESIDUE	0

(Enter Total on Page 2, Step 2 a)

B. Solid Waste Re-Used

MATERIAL DESCRIPTION	REUSE METHOD	TONS OF MATERIAL
Furniture/Appliances	Ylass Program (Collected - Spring Move-Out)	7
Food Donations	Campus Kitchen Program (Dining Services)	10
	TOTAL SOLID WASTE REUSED	17

(Enter Total on Page 2, Step 2 b)

C. Non-Municipal Solid Waste (MSW) Recycled

MATERIAL DESCRIPTION	RECYCLING METHOD	TONS OF MATERIAL
Hokie Stone Gravel	Quarry "Overburden" - Stone recycled to Gravel	12,839
Asphalt	VDOT Roadwork – Milled Asphalt	365
Commingled	CID-LLC & Holden Hall Construction Projects	415
Commingled	Student Athlete Performance Center Project	121
	TOTAL NON-MSW RECYCLED	13,740

(Enter Total on Page 2, Step 2 c)

D: A credit of two (2) percentage points may be added to the Adjusted Recycling Rate #1 if the Solid Waste Planning Unit has implemented a Source Reduction Program (SRP). Examples of SRPs include Grass-cycling, Home Composting, Clothing Reuse, Office Paper Reduction (duplexing), Multi-Use Pallets, or Paper Towel Reduction. The SRP must be included in the Solid Waste Management Plan on file with the Department:

SRP description: The 2018-2019 Green RFP Program provided over $16,000 for the purchase reusable to-go food containers for use in 4 on-campus dining facilities.

SRP description: Campus Kitchen Program provided 10 tons of food donations from our dining facilities to families in need in the Blacksburg Community.

SRP description: Ytoss Program (Partnership with the student group YMCA at Virginia Tech) collected 7 tons of reusable items in residence halls during Spring Move-Out.

(Certify on Page 2, Step 4)

Exclusions: **For the purposes of this report, the following materials are not considered solid wastes, and should not be included in any of the data categories utilized in calculating the recycling rate.**

1. **Biosolids –industrial sludge, animal manures; or, sewage sludge (unless composted)**
2. **Automobiles – unless part of the Inoperable Vehicle Program (DMV)**
3. **Leachate**
4. **Soils – contaminated soils, soil material from road maintenance**
5. **Household hazardous waste**
6. **Hazardous waste**
7. **Medical waste**
8. **Rocks or stone**
9. **Woody waste derived from land clearing for development, VDOT or easement tree trimming/clearing.**

Part III: Total Municipal Solid Waste (MSW) Disposed** – Report only MSW generated within the reporting jurisdiction(s), NOT imported wastes or industrial wastes.

MSW TYPE	TOTAL AMOUNT of MSW DISPOSED (TONS)
Household	
Commercial	
Institutional	
Other (DO NOT INCLUDE INDUSTRIAL WASTES)	3,976
TOTAL MSW DISPOSED	3,976

(Enter Total on Page 2, Step 1 and Step 3)

*Note: **MSW DISPOSED** for the purpose of this report means delivered to a permitted sanitary landfill, delivered to a waste-to-energy facility, or managed at a transfer station for transport to a landfill or waste-to-energy facility.*

Credits Worksheet

I. Reuse of any Solid Waste

√		Material description	Tons	
___	PRM			
___	PRM			
___	PRM			
___	Industrial			
___	Construction			
___	Demolition			
___	Debris			
___	Other			
_X_	Ytoss Program	Reusable Residence Hall Items	7	
_X_	Campus Kitchen	Donated Food Program (Din Svcs)	10	
		TOTAL TONS	**17**	**(enter data on Page 4, Solid Waste Re-Used)**

II. Recycling of any Non-Municipal Solid Waste

√		Material description	Tons	
_X_	Roadwork	Asphalt (VDOT)	365	
_X_	Construction	Holden Hall – Commingled	201	
_X_	Construction	CID LLC – Commingled	214	
_X_	Construction	Student Ath Perf. Ctr- Commingled	121	
_X_	Quarry Ops	Hokie Stone "Overburden" to Gravel	12,893	
___	Other			
___	Other			
		TOTAL TONS	**13,740**	**(enter data on Page 4, Non-MSW Recycled)**

III. Inoperable Vehicles Removed and Demolished – include number of vehicles that the localities received reimbursement from DMV under §46.2-1207 of the Code of Virginia.

# of vehicles removed/reimbursement received	0	
Average tonnage per vehicle	X 1 Ton each	
Total Tons	**0**	**(enter data on Page 3, PRMs, Inoperative Motor Vehicle Program)**

NOTE: Check "Exclusions" on Page 5 to avoid listing of those materials on this worksheet and/or in the data fields of this report.

Part C: Recycling Rate Report Instructions

Amended Regulations for the Development of Solid Waste Management Plans (9 VAC 20-130-10 et seq.) require that Solid Waste Planning Units (SWPUs) in the Commonwealth develop complete, revised solid waste management plans. Section 9 VAC 20-130-120 B & C of the Regulations requires that a minimum recycling rate of the total municipal solid waste generated annually in each solid waste planning unit be maintained. It also requires that the plan describe how this rate shall be met or exceeded and requires that the calculation methodology be included in the plan. Section 9 VAC 20-130-165 D establishes that every solid waste management planning unit with populations over 100,000 shall submit to the department by April 30 of each year, the data and calculations required in 9 VAC 20-130-120 B & C for the preceding calendar year. SWPUs with populations of 100,000 or less are only required to report every 4 years (CY years 2016 and forward).

NOTE: ONLY RECYCLING RATE REPORTS FROM AN APPROVED SOLID WASTE PLANNING UNIT (SWPU) WILL BE ACCEPTED FOR PROCESSING. JURISDICTIONS WITHIN A SWPU MUST SUBMIT THEIR RECYCLING DATA TO THE SWPU FOR INCORPORATION INTO THE ANNUAL REPORT.

It is requested that all amounts included on the form be listed in **tons (2,000 pounds)**, rounded to the nearest whole ton. If actual weights are not known, volumes can be converted to weight estimates. To assist you with these estimates, a standardized volume-to-weight conversion table is attached.

Contact Information Section: Please provide information on the Reporting SWPU and information on the individual completing this form. Under Member Governments, please list the local governments identified in the applicable solid waste management plan.

Calculated Recycling Rate Section: Using the formulae provided, calculate your recycling rates for the reporting period from information identified in the Recycling Rate Calculations Section.

Signature Block Section: Please provide an authorized signature prior to submitting the completed form. Authorized signatories include Executive Officer, Administrator, or other legally designated representative of the SWPU reporting entity.

Recycling Rate Calculations Section: Please provide the requested information:

Part I: Principal Recyclable Material (PRM) - Report the amount in tons of each PRM collected for recycling in the named jurisdiction(s) during the reporting period. PRMs include paper, metal, plastic, container glass, commingled, yard waste, waste wood, textiles, tires, used oil, used oil filters, used antifreeze, batteries, electronics, and other materials approved by the Director taken from the Municipal Solid Waste (MSW) generation. A one ton credit may also be entered for each inoperable motor vehicle for which a locality receives reimbursement from the Virginia Department of Motor Vehicles under §46.2-1207 of the *Code of Virginia*. The total weight in **TONS** of all PRMs collected for recycling is represented as **PRMs** in the Recycling Rate Calculation. **New for CY 2015: Provide source information for the PRMs reported on the report (permitted and unpermitted facilities).**

Part II: Credits – Report the amount in **TONS** of each material for which recycling credit is authorized in §10.1-1411.C of the *Code of Virginia*: (i) one ton for each ton of recycling residue generated in Virginia and deposited in a landfill permitted under §10.1-1408.1 of the *Code of Virginia*; (ii) one ton for each ton of any solid waste material that is reused; and, (iii) one ton for each ton of any non-municipal solid waste that is recycled. The total weight in **TONS** of all material for which credits are authorized is represented as **CREDITS** in the Recycling Rate Calculation. A credit of two percentage points of the minimum recycling rate mandated for the Solid Waste Planning Unit (SWPU) may be taken for a source reduction program that is implemented and identified in its Solid Waste Management Plan. Total credits may not exceed five percentage points above the Base Recycling Rate achieved by the SWPU.

Part III: Total Municipal Solid Waste (MSW) Disposed: Report the total amount in **TONS** of MSW that was disposed of by the Solid Waste Planning Unit (SWPU) during the reporting period for each of the source categories (Household, Commercial, Institutional, and Other). For the purpose of this report, "disposed," means delivery to a permitted sanitary landfill or waste incinerator for disposal, and excludes industrial wastes. Industrial waste and by-products should not be included in the MSW or Recycling calculation. The total weight in tons of MSW disposed is represented as **MSW Disposed** in the Recycling Rate Calculation.

Locality Recycling Rate Report Volume to Weight Conversion Table

Material	Volume	Weight in Pounds
Metal		
Aluminum Cans, Whole	Once cubic yard	50-74
Aluminum Cans, Flattened	One cubic yard	250
Aluminum Cans	One full grocery bag	1.5
Ferrous Cans, Whole	One cubic yard	150
Ferrous Cans, Flattened	One cubic yard	850
Automobile Bodies	One vehicle	2,000
Paper		
Newsprint, Loose	One cubic yard	360-800
Newsprint, Compacted	One cubic yard	720-1,000
Newsprint	12" stack	35
Corrugated Cardboard, Loose	One cubic yard	75-100
Corrugated Cardboard, Baled	One cubic yard	1,000-2,000
Plastic		
PETE, Whole, Loose	One cubic yard	30-40
PETE, Whole, Loose	Gaylord	40-53
PETE, Whole, Baled	30"x62"	500
Film, Baled	30"x42"x48"	1,100
Film, Baled	Semi-Load	44,000
Film, Loose	Standard grocery bag	15
HDPE (Dairy Only), Whole, Loose	One cubic yard	24
HDPE (Dairy Only), Baled	32" x 60"	400-500
HDPE (Mixed), Baled	32" x 60"	900
Mixed PET & Dairy, Whole, Loose	One cubic yard	32
Mixed PET, Dairy & Other Rigid (Whole, Loose)	One cubic yard	38
Mixed Rigid, No Film	One cubic yard	49
Glass		
Glass, Whole Bottles	One cubic yard	600-1,000
Glass, Semi-Crushed	One cubic yard	1,000-1,800
Glass, Crushed (Mechanically)	One cubic yard	800-2,700
Glass, Whole Bottles	One full grocery bag	16
Glass, Uncrushed to Manually Broken	55 gallon drum	125-500
Arboreal		
Leaves, Uncompacted	One cubic yard	200-250
Leaves, Compacted	One cubic yard	300-450
Leaves, Vacuumed	One cubic yard	350
Wood Chips	One cubic yard	500
Grass Clippings	One cubic yard	400-1,500
Other		
Battery (Heavy Equipment)	One	60
Battery (Auto)	One	35.9
Used Motor Oil	One gallon	7.4
Used Oil Filters (Uncrushed)	55 gallon drum	66 Lbs./Used Oil+ 110 Lbs./Ferrous Metal
Used oil Filters (Crushed)	55 gallon drum	16.5 Lbs./Used Oil + 368 Lbs./Ferrous Metal
Tire - Passenger Car	One	20
Tire - Truck, Light	One	35
Tire - Semi	One	105
Antifreeze	One gallon	8.42
Food Waste, Solid & Liquid Fats	55 gallon drum	412
Electronics: CRT/CPU/Laptop/TV	Each (avg wt from NCER)	38/26/8/49 respectively
This Table For General Guidance Only.		

Virginia Tech Sustainable Procurement Policy

1. Background

In accordance with the Virginia Tech Climate Action Commitment and Sustainability Plan, the Virginia Tech Procurement Department [the Department] recognizes its responsibility to support the university in its efforts to minimize negative impacts on health and the environment while supporting a vibrant campus community and local economy. The Department recognizes that the types of products and services procured have inherent social, health, environmental and economic impacts, and that the Department should make procurement decisions that embody the university's commitment to sustainability whenever possible.

2. Purpose

This Sustainable Procurement Policy will complement and strengthen our commitment to sustainability and intends to:

- Identify those sustainability factors that shall be incorporated into procurement decisions;
- Provide implementation guidance;
- Empower employees to be innovative and demonstrate leadership by incorporating sustainability factors into procurement decisions;
- Complement university wide and department-specific sustainability goals and related policies; and communicate the Department's commitment to sustainable procurement.
- Encourage vendors to promote products and services that they offer which are most suited to the university's sustainability principles;
- Reduce the spectrum of environmental impacts from the university's use of products, including greenhouse gas emissions, landfill waste, health and safety risks, and resource consumption;
- Communicate the Department's commitment to sustainable procurement, by modeling the best product and services choices to the campus community, and other institutions of higher education;
- Reduce the environmental impacts of materials acquired for use in the operation, maintenance and upgrades of buildings, new building construction; and,
- Facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills or incineration facilities.

3. Policy

3.1 General Policy Statement

Procurement Department employees and those with delegated procurement authority will procure materials, products or services in a manner that integrates fiscal responsibility and environmental stewardship whenever possible within the guidelines of the Purchasing Manual for Institutes of Higher Education. Each university department shall comply with this policy and actively encourage procurement decisions that reflect the policy objectives. The Procurement Department shall actively promote and encourage product and service acquisitions compliant to the policies and guidelines adopted herein.

3.2 Sustainability Factors

Procurement Department employees shall incorporate whenever possible the following factors when writing specifications for, or procuring materials, products, or services.

Environmental factors which may be considered include, but are not limited to, the life cycle assessment of:

- Pollutant releases
- Toxicity
- Waste generation
- Water efficiency
- Greenhouse gas emissions
- Energy efficiency
- Packaging and shipping impacts
- Depletion of natural resources
- Recyclability
- Use of recycled content

Fiscal factors to be considered may include, but are not limited to:

- Product efficiency which minimizes need
- Product performance, quality, and durability
- Upfront cost
- Life-cycle cost
- Leveraging of buying power through the utilization of cooperative, group purchasing and consortium contracts
- Impact on staff time and labor, including operational and maintenance requirements

While not all factors will be incorporated into every purchase, it is the intent of this policy that Procurement Department employees will make a good faith effort to incorporate and balance these factors to the maximum extent possible.

4. Use of Best Practices

Procurement Department employees will utilize best practices in sustainable procurement as they evolve whenever possible. As it applies to this policy, best practices in sustainable procurement are those that utilize leading edge sustainability factors, standards, and procedures in an efficient and effective way that is successful and replicable. The Procurement Department will promote and encourage strategies to reduce consumption due to the societal and community costs, such as landfill waste handling, toxin exposures, resource depletion, and greenhouse gas emissions.

The following guidelines and best practices are provided and required to the extent practical:

General

- Always look for environmental labeling, including recycling symbols and qualifying assertions such as ENERGY STAR, WaterSense, EPEAT, and/or Green Seal certified.
- When purchasing materials, supplies or equipment, purchases must meet sustainability requirements as may be specified in the solicitation documentation.
- Waste stream management within the buildings and among the grounds must be compliant withspecified requirements, specifically for consumable goods and facilities alterations and additions.

4.1 Applicable Codes and Laws

It is the intent of this policy to complement existing codes and laws. Nothing in this policy shall be construed to conflict or be inconsistent with applicable federal, state, or local procurement codes or laws.

5. Environmental Standards and Product and Certifications

5.1 Standards: The standard for all acquisitions shall be compliant at least to:

- The U.S. Environmental Protection Agency (EPA) standards whenever published for a product or services; and
- The Virginia Department of Environmental Quality (DEQ)

5.2 Third-Party Certifications: The Procurement Department shall apply the most stringent third-party label standard available for a product or service being acquired. The Department shall use independent, third-party social and/or environmental (eco) product or service label certifications when writing specifications for procuring materials, products, or services, whenever a responsible label standard is available. Qualifying labels shall be:

- Developed and awarded by an impartial third-party (examples include: Green Seal, ENERGY STAR, EPEAT, Environmental Choice and Forest Stewardship Foundation);
- Developed in a public, transparent, and broad stakeholder process; and
- Represent specific and meaningful leadership criteria for that product or service category.

In addition, whenever possible, label standards used in product or service specifications should represent standards that consider multiple attributes and life-cycle considerations, with claims verified by an independent third party.

5.3 Specifications and Contracts

The Director of Procurement shall be responsible for:

- Ensuring that specifications written by the Department comply with this policy and incorporate sustainable procurement best practices.
- Ensuring procurement manuals and other internal procedures reference this policy and incorporate best practices for specifying products and services that meet the intent of this policy; and,
- Developing and integrating sustainable procurement boilerplate language into solicitation document templates.

6. Implementation and Responsibilities

6.1 Acquisition Responsibilities

Leadership of those areas with delegated procurement authority shall:

- Serve on specification or best practice teams, to collaborate with other university staff and the Procurement Department in standards, strategies and specifications;
- Ensure internal policies and procedures that reference this policy and incorporate the use of sustainable products and services that meet the intent of this policy; and,
- Encourage pilot testing for environmentally preferable/sustainable products.

The Procurement Department shall:

- Promote and ensure that bid and contract strategies incorporate the most favorable standards and best practices in sustainable procurement;
- Stay current and informed on advances in sustainable procurement specifications and strategies; and,
- Consult with experts as needed when reviewing or designing specifications, to ensure progressive and emerging specifications for the product or service being solicited.

7. Education

Leadership of those areas with delegated procurement authority shall be responsible for:

- Building awareness of this policy through information dissemination and incorporation into routine employee trainings;
- Encouraging employee attendance at internal and external trainings related to sustainability; and
- Encouraging the use of environmentally preferable/sustainable products and services through information dissemination, development of internal procedures, pilot testing, and leading by example.

The Purchasing Department shall be responsible for:

- Developing employee sustainable procurement resources such as, but not limited to, standards, specifications, tools, and best practices;
- Developing buyer-specific training on sustainable procurement best practices that meet the intent of this policy;
- Developing buyer competency in communicating to other university departments about this policy and opportunities for incorporating sustainable procurement best practices into solicitations and contracts;
- Developing communication among higher education procurement professionals about sustainable procurement best practices; and
- Taking the lead in communicating to existing and potential vendors about this policy and related requirements.

8. Policy Review

The Director of Procurement shall be responsible for periodically bringing together internal stakeholders to review this policy for updates or to otherwise determine whether this policy is in alignment with other university sustainability efforts and policies. The policy review shall be completed at least every five years but may be done on a more frequent basis as needed.

9. Explanation of Sustainable Terms

Following are routine terms related to sustainability as they apply to this policy.

Alternative/Hybrid Fuel Vehicle - vehicles that are powered by fuels that reduce air pollution, reduce fossil fuel consumption, solid waste and/or hazardous waste that result from their manufacture, use, service, and maintenance. The term is used to refer to various types of vehicles, including compressed natural gas, biodiesel, ethanol, electric and hybrid electric, propane, liquefied natural gas, and hydrogen fuel cell.

Biodegradable - capable of readily decomposing under natural conditions.

Durable Goods - goods which do not quickly wear out, or more specifically, it yields services or utility over time rather than being completely used up when used once.

Energy Efficiency - refers to products that meet or exceed the U.S. Department of Energy (DOE) federal energy management program's energy efficiency recommendations r that meet the energy efficiency criteria of the U.S Environmental Protection Agency (EPA) ENERGY STAR program.

ENERGY STAR - A voluntary partnership among DOE, EPA, product manufacturers, local utilities and retailers. Partners help promote efficient products by labeling with the ENERGY STAR logo and educating consumers about the benefits of energy efficiency.

Environmentally Preferable - products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or service that serve the same purpose. The product or service comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance or disposal.

EPEAT- the Electronic Product Environmental Assessment Tool (epeat.net)

Integrated Pest Management- the coordinated use of pest information, environmental information, and available pest control methods to prevent unacceptable levels of pest damage by the most economical means and with the least possible hazard to people, property, and the environment.

Ongoing Consumables - Goods that may be depleted or worn out by use and must therefore be regularly replenished.

Post-Consumer Material - refers to a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. "Post-consumer material" is part of the broader category of "recovered material."

Practicable - means sufficient in performance and reasonably available at a competitive cost.

Reconditioned/Remanufactured - the process of restoring used durable products to meet original performance standards. Remanufacturing has many other names, including: rebuilding, retreading, reconditioning, and refurbishing.

Recycled Content - materials that have been recovered from the solid waste stream, either during the manufacturing process (pre-consumer), or after consumer use (post-consumer).

Recycling- placing used materials into channels that reuse them.

Waste Stream - The total flow of solid waste from homes, businesses, institutions, and manufacturing plants that is recycled, burned, or disposed of in landfills.

Xeriscaping/Sustainable Landscaping - an ecologically sound landscaping approach that is water conscious.

10. Additional Resources

This section provides university staff, vendors, and potential vendors resources for identifying suppliers of sustainable products as well as best practices which may be useful in the successful application of this sustainable procurement policy. The following lists of organizations and sites may be consulted when purchasing products and services.

The Association for the Advancement of Sustainability in Higher Education: (aashe.org) AASHE empowers higher education faculty, administrators, staff and students to be effective change agents and drivers of sustainability innovation.

ENERGY STAR: (energystar.gov)- Develops energy efficiency guidelines and helps promote the utilization of efficient products through the ENERGY STAR logo.

EPA Green Resources: (epa.gov/greenerproducts) Allows users to search for EPA programs related to greener products based on the type of user and their specific product interests.

EPEAT: (epeat.net) The Electronic Product Environmental Assessment Tool

consists of a set of voluntary environmental criteria for identifying energy efficient and environmentally preferable computers and other electronic components.

Green Seal: (greenseal.org) Establishes environmental standards and awards its "green seal of approval" to products meeting its standards. Green Seal has created environmental standards for more than 30 product categories and regularly publishes its Choose Green Reports, which evaluate the environmental impacts of products.

My Green Lab: (mygreenlab.org) Formed to unify and lead scientists, vendors, designers, energy providers, and others in a common drive toward a world in which all research reflects the highest standards of social and environmental responsibility.

New American Dream: (newdream.org) Provides extensive information on purchasing energy efficiency and environmentally preferable products via its Responsible Purchasing Network.

US EPA WaterSense: (epa.gov/watersense) Provides labeling, certification, information regarding water efficient products, contractors, and programs.

Virginia Department of Environmental Quality: (deq.virginia.gov)- The Department of Environmental Quality protects and enhances Virginia's environment, and promotes the health and well-being of the citizens of the Commonwealth.

Virginia Tech Office of Sustainability: (facilities.vt.edu/sustainability) The Office of Sustainability acts as a central hub to connect the many sustainability champions and efforts taking place all across campus.

HOKIE BIKE HUB

Perry Street Parking Garage
1330 Perry St. Blacksburg, VA 24061
Monday–Friday from 8 a.m. to 6 p.m.

- The Hokie Bike Hub is a **FREE** service dedicated to hands-on learning and empowering Virginia Tech bicyclists through a variety of maintenance resources.
- Access to tools for self-service bike maintenance and repair
- One-on-one help and attention

Fix-It Stations

24/7 repair stands and air pumps that include all the tools necessary to perform basic bike maintenance. Locations include: Squires Plaza, Dietrick Hall, Duck Pond Trail, Randolph Hall, Pamplin Hall, and War Memorial Gym.

Gotcha Bike Share

ridegotcha.com/location/roanoke

Membership-based bike rental with stations on campus and in Blacksburg, Christiansburg, and Montgomery County.

HEADS UP HOKIES

Heads Up Hokies is an awareness and safety campaign that encourages everyone to "Be aware, be predictable, and be a Hokie!"

Alternative Transportation Department

1330 Perry Street, Blacksburg, VA, 24061
540-231-2116
Monday–Friday from 9 a.m. to 6 p.m.

parking.vt.edu/alternative
GettingAround@vt.edu
Virginia Tech Alternative Transportation
VTAlternativeTransportation
@gettingaroundvt

VT | PARKING & TRANSPORTATION
VIRGINIA TECH

NO CAR?
No problem

parking.vt.edu/alternative

RULES AND REGULATIONS

Bikes and E-Scooters

- All bikes regularly parked on campus must be registered: **tinyurl.com/vtbikeregistration**
- Bicyclists must obey the same traffic laws as motorists
- Bikes and scooters are permitted on all roadways, shared-use paths, and sidewalks, except sidewalks in downtown Blacksburg
- People on bikes and scooters must yield to pedestrians
- It is illegal to bike or scoot while using headphones/earphones

Pedestrians

- Pedestrians should cross streets at intersections or marked crosswalks

Mopeds and Personal Mobility Devices

- Mopeds are only permitted on roadways
- A parking permit is required to park on campus
- Skateboards, skates, and electric personal assistive mobility devices are allowed on paved pathways and sidewalks, but not in roadways or parking lots/garages

Motorists

- Vehicles must give at least three feet of clearance to bicyclists
- Vehicles turning must yield to pedestrians and bicyclists
- Drivers must signal turns

MASS TRANSIT

Local

BLACKSBURG TRANSIT
All Week | Free **ridebt.org**
Virginia Tech – Christiansburg – Blacksburg

SMART WAY EXPRESS
Mon-Fri | Free **smartwaybus.com**
Virginia Tech Campuses:
Blacksburg campus – VTC in Roanoke

SMART WAY BUS
Mon-Sat | $ **smartwaybus.com**
Roanoke – Blacksburg – Roanoke Airport

ROANOKE AIRPORT TRANSPORTATION SERVICE
Sunday | $ **roanokeairport.com**
Runs from ROA to Blacksburg on Sundays

RADFORD TRANSIT
Mon-Fri | $ **radfordtransit.com**
Radford – Blacksburg – Christiansburg

State

VIRGINIA BREEZE
All Week | $$ **virginiabreeze.org**
Blacksburg – Washington, D.C.
Stops along I-81 and I-66

CAMPUS CONNECT
All Week | $$ **tinyurl.com/vtcampusconnect**
Virginia Tech Campuses:
Blacksburg campus – Arlington Campus

ABBOTT HOMERIDE
Major Breaks | $$$ **abbottbus.com/homeride**
Harrisonburg – Richmond
Charlottesville – Manassas – Hampton

National

COLLEGETRANSIT
Major Breaks | $$$ **collegetransit.com**
Pennsylvania – New Jersey – New York

AMTRAK
All Week | $$$ **amtrak.com**
Roanoke – Washington D.C. – all over the country

CAR AND RIDE SHARING

Zipcar

zipcar.com/vt

- 24/7 access to vehicles
- Hourly or daily rental of nationwide fleet
- Gas, insurance, and maintenance included

RIDE Solutions

ridesolutions.org

- Find rides to and from work/school and across the state. Modes include carpooling and vanpooling, as well as transit and bicycle buddy options.
- The free Guaranteed Ride Home Program assures a ride home in the event of an emergency.

COMMUTER ALTERNATIVES PROGRAM

Bike, Bus, and Walk

- Sixteen reduced-price daily parking permits per semester (six daily permits per summer session)

Carpool

- Reduced-cost parking permit
- Designated carpool parking areas located across campus

Employee Only Vanpool

- Shared, monthly vanpool cost payroll deducted using pretax dollars
- Reserved parking space near driver's office

VIRGINIA TECH

Associate Vice President and Chief Facilities Officer
230 Sterrett Dr., Suite 112 (0127)
Blacksburg, Virginia 24061
Phone: 540-231-6291 Fax: 540-231-4745

MEMORANDUM

TO: Student Organizations

FROM: Christopher H. Kiwus, Associate Vice President and Chief Facilities Officer

DATE: September 18, 2019

SUBJECT: Academic Year 2019-20 Request for Proposal for Sustainability Initiatives by Student Organizations Program (Green RFP Program)

Student engagement is an important factor in advancing sustainability at Virginia Tech. The university has created the Request for Proposal for Sustainability Initiatives from Student Organizations Program (called the "Green RFP Program") to solicit proposals from recognized student organizations that supports the goals of the Virginia Tech Climate Action Commitment and Sustainability Plan. Since its initiation in academic year 2010-11, the Green RFP Program has provided funds in excess of $1.2 million for 83 approved student sustainability proposals.

The purpose of this memorandum is to present the proposal submission process, timeline, format, contacts, and the review criteria. Recognized student organizations should identify sustainability initiatives that are directly targeted to specific projects and therefore limited in size and scope. The university is especially interested in projects focused on energy reduction and conservation that produce achievable savings. Requests for one-time support are generally preferred over those requiring ongoing support.

The process and key dates for proposal submission and are shown in Attachment 1. The process begins with this memorandum and continues through the current academic year. Approved proposals will be formally announced during Spring Semester 2020.

Student organizations will submit a proposal(s) using the form titled "Sustainability Initiatives by Student Organizations Funding Proposal" shown in Attachment 2. All four parts of the form must be completed in detail. Part 111, "Supporting Information" should be completed prior to addressing Part 11, "Project Cost Information " As shown in Part IV, all proposals must have an appropriate university official's participation and concurrence prior to submission. The participation of the appropriate university official is essential, particularly if a proposal involves the purchase and installation of new equipment, a modification to an existing facility or grounds, or a new program.

The completed form must be signed and electronically submitted to Dennis C. Cochrane in the Office of Sustainability at **denniscc@vt.edu** by 4p.m. on November 8,2019. If students have questions, need assistance in completing the form,

or need assistance with identifying the appropriate university official for their proposal, please contact Mr. Cochrane via email or office telephone 540-231-518.4If technical assistance is needed in preparing a proposal, please see our subject matter contact list in Attachment 3. For a list of previously approved Green RFPs, please visit the Office of Sustainability website:
facilities.vt.edu/sustainability/sustainability-programs/green-rpf-program

The Office of Sustainability will present select proposals to the university's Energy and Sustainability Committee for review and prioritization. This committee is a part of our university governance system and is comprised of faculty, staff, graduate students, and undergraduate students. The committee will consider and evaluate proposals based on the following criteria:

- Does the proposal help to achieve the goals of the Virginia Tech Climate Action Commitment and Sustainability Plan? See: Presidential Policy Memorandum No. 262 Revision 1"Update to the Virginia Tech Climate Action Commitment" dated May 8, 2013.
  facilities.vt.edu/content/dam/facilities_vt_edu/sustainability/climate-action-commitment.pdf
- Does the proposal generate savings that exceed the cost of implementation?
- Does the proposal pertain to energy reduction/conservation that produces cost savings?
- Does the funding request address a one-time or an ongoing need?
- Does the proposal leverage other sources of funding or volunteer effort?

Select proposals meeting these criteria will be prioritized and submitted by the Energy and Sustainability Committee to the Office of Budget and Financial Planning (OBFP) for further consideration. OBFP will assemble a budget committee to review proposals and determine potential funding strategies for those recommended for approval. The Vice President for Finance will announce the list of approved proposals and funding sources. The Office of Sustainability will oversee implementation.

Thank you for your interest in the university's sustainability efforts. I encourage your participation in this very popular student program.

c: Dennis C. Cochrane
Gannon T. Davis
James S. Hillman
Timothy L. Hodge
Travis W. Hundley
Kenneth E. Miller
Angela S. Page
Patricia A. Perillo
Jonathan C. Teglas

STUDENT ORGANIZATIONS SUSTAINABILITY INITIATIVE PROPOSAL PROCESS AND TIMELINE

DATE	ACTIVITY
Sep 16, 2019	Associate Vice President and Chief Facilities Officer announces the 2019-20 Green RFP Program and the Office of Sustainability (OS) notifies student organizations.
Nov 8, 2019	Proposal submission deadline to OS.
Nov 13, 2019	OS coordinates a proposal review for feasibility and completeness.
Jan 27, 2020	Energy and Sustainability Committee receives select proposals, and appoints Subcommittee to review and recommend a priority order.
Feb 24, 2020	Subcommittee presents proposed priority recommendations to the Energy and Sustainability Committee for approval.
Mar 4, 2020 (estimated)	Energy and Sustainability Committee presents proposals to the Office of Budget and Financial Planning for review and funding consideration.
Mar 2020 (estimated)	Office of Budget and Financial Planning, in coordination with other university offices, determines potential funding options for proposals and seeks the appropriate approvals.
Apr 2020 (estimated)	Vice President for Finance and Chief Financial Officer announces the approved proposals and funding sources.
May 2020 (estimated)	The Office of Budget and Financial Planning transfers funds to the appropriate Green RFP funding codes for proposal implementation.
May 2020 (estimated)	OS initiates Green RFP implementation.

Attachment # 2

STUDENT ORGANIZATIONS SUSTAINABILITY INITIATIVE PROPOSAL FORM

Part I — General Information:

Name of Student Organization	
Contact/Responsible Person	
Contact Office Held/Title	
Contact Email Address	
Contact Telephone Number	

Part II — Project Cost Information

Estimated Cost of this Proposal		See III.C. Below
Estimated Savings -		See III.D. below
Net Cost of this Proposal =		

Part III — Supporting Information

A. Please describe your sustainability initiative and attach supporting documentation.

B. How does this initiative help to achieve the goals of the Virginia Tech Climate Action Commitment Resolution and Sustainability Plan?

C. What is the cost of your proposal? Please describe in adequate detail the basis for your cost estimate.

D. Will your proposal produce cost savings for the University? If so, how much? Please describe in adequate detail the basis for your savings estimate.

E. Is this funding request for a One-Time need or an Ongoing need (please check one)?

☐ One-time ☐ Ongoing

F. Is funding available for this request from another source? If yes, describe the funding (source, amount, etc.)

Attachment # 2

STUDENT ORGANIZATION SUSTAINABILITY INITIATIVE PROPOSAL FORM
(Continued)

For University Use Only

Prepared By (Name of Graduate or Student Organization) _____ Date _____

Reviewed by (Name of Appropriate University Official) _____ Date _____

Reviewed By (Name of Office of Sustainability Representative) _____ Date _____

Attachment # 3

STUDENT ORGANIZATION SUSTAINABILITY INITIATIVE FUNDING PROPOSAL
CONTACT LIST

In the preparation of your Green RFP form, student organizations are encouraged to seek input and guidance from the following list of university employees. These individuals are familiar with the form and the process. They can address the feasibility of your proposal, provide a technical review, and evaluate the cost & potential savings.

Area of Expertise	Name	Title	Email Address
Engineering & Operations, Energy Management	Kim Snider	Director Engineering & Assessment	ksnider@vt.edu
Facilities: Housing & Residence Life	Todd Pignataro	Associate Director of Facilities	ptodd@vt.edu
Facilities: Buildings & Grounds (Small Renovations)	Jim McDaniel	Project Coordinator	jmcdan@vt.edu
Exterior Lighting	Rob Elson	Director VT Electric Services	RobElson@vt.edu
Student Engagement & Campus Life	Clayton Kolb	Associate Director Student Eng. & Campus Life	kolbcj@vt.edu
Dining Services & Housing (Student Affairs)	Blake Bensman	Sustainability Mgr.	bensman@vt.edu
Alternative Transport (Bus, Bike & Walk/Electric Vehicles)	Nick Quint	Transportation Network Mgr.	nquint@vt.edu
Landscape Architecture	Melissa Philon	Site Planner	mrphilen@vt.edu
Hahn Horticulture Garden	Scott Douglas	Director/Instructor	dscott@vt.edu
Recycling and Waste Management	Danny Cochrane	Director Office of Sustainability	dennisco@vt.edu
Other Sustainability Topics	Nathan King	Sustainability Mgr. Office of Sustainability	naking@vt.edu