VIRGINIA TECH™

SUSTAINABILITY Annual Report 2024-25

EXECUTIVE SUMMARY

Since the approval of Virginia Tech's first Climate Action Commitment in 2009, Virginia Tech has demonstrated a strong commitment to becoming a leader in sustainability. Under Virginia Tech's 2020 Climate Action Commitment, the university is reaching higher, pushing harder, and accomplishing more to support sustainability initiatives. The 15 goals outlined in the Climate Action Commitment are meaningful, impactful, and challenging. Implementing and meeting these goals will require support, hard work, innovation, and partnerships across the university.

Virginia Tech's global rankings continue to bring the university positive recognition. The three pillars of the university's land-grant mission (research, education, and service) have positioned Virginia Tech to perform well in the Times Higher Education Impact Rankings year after year, scoring in the top 201-300 institutions worldwide. Virginia Tech's commitment to the conservation of the natural environment is demonstrated in the continued Tree Campus Higher Education certification for the seventeenth year and Bee Campus USA certification for the fourth year.

The overarching goal of the Climate Action Commitment is for Virginia Tech's Blacksburg campus to become carbon neutral by 2030. Meeting this aggressive goal will require decreasing the university's carbon emissions and energy consumption while simultaneously increasing its portfolio of renewable energy. Working collectively to create a shift in campus culture is key. The major milestones to meet this ambitious climate action target are split between the 15 goals of the Climate Action Commitment, progress towards each of which is presented in this report.

To meet both the infrastructural and behavioral goals outlined in the Climate Action Commitment, the Office of Sustainability hosts collaborative meetings bringing together key stakeholders in the areas of climate action, sustainability, energy, waste, dining, transportation, and academics to discuss progress and challenges on a nearly biweekly basis since the approval of the commitment. Additionally, the Climate Action, Sustainability, and Energy Committee has continued to grow and take on more responsibility for the implementation of the Climate Action

Commitment through the work of its many targeted subcommittees. The collaborative spirit of working in tandem with partners across campus is key to the continued success of sustainability initiatives and progress.

The university's efforts for waste reduction and minimizing contamination in its waste stream have resulted in an 89 percent waste diversion rate for calendar year 2024. Keeping waste out of the landfill through recycling, donation, avoidance, thoughtful procurement, repair, or repurposing is key to achieving a zero-waste campus.

The completion of the Transit Center in March 2024 brought a centralized hub for all Blacksburg Transit routes on campus. With 17 covered bus bays divided among two loops, a lounge area for BT drivers, and space dedicated to Virginia Tech's sustainable transportation efforts, the facility is a critical piece of both the university's focus on mobility and a broader regional collaboration. The Transit Center anchors Virginia Tech's ongoing push to reduce reliance on personal vehicles and prioritize multimodal transportation. As a result of the Transit Center opening, and all the accompanying changes to Blacksburg Transit routes that improved efficiency, fiscal year 2024-25 ridership increased by 24 percent to over 4.7 million riders.

The Climate Action Living Laboratory (CALL) has continued to have a positive impact on both students and Virginia Tech's Blacksburg campus. Over 150 faculty members are part of a network working towards providing valuable educational experiences for students that also improve the sustainability of campus, solve real world problems, and bring together stakeholders for meaningful work. During the 2024-25 academic year, the Office of Sustainability partnered with five classes from a variety of colleges and departments across campus. One highlight from academic year 2024-25 was the creation of the Sustainable Impact Academy, a course taught by professors and staff from diverse disciplines across the university; it uses the Blacksburg campus as a classroom and brings collaborative problem-solving teams together to tackle sustainability challenges. Students built a scientific foundation, developed analytical skills, and engaged in reflective discussions through the classroom component of the course. They also found a solution to a problem-based learning experience by analyzing real-world data on water and energy consumption in Patton Hall.

The Virginia Tech 2024-25 Sustainability Annual Report begins with a broad overview of the university's ongoing sustainability efforts. It presents the 15 goals of the Climate Action Commitment and showcases sustainability highlights and progress for each.

INTRODUCTION

Virginia Tech's Climate Action Commitment defines sustainability as the simultaneous pursuit of environmental quality, economic prosperity, and social justice and equity. The goals of the Office of Sustainability and the university's Climate Action Commitment are to achieve this pursuit through action, education, and engagement to address current needs without compromising the ability to meet the needs of future generations. Virginia Tech's sustainability vision is to be a leader in climate action in service to its community, the commonwealth, and the world.

Virginia Tech's sustainability mission is to achieve carbon neutrality by 2030 through changes to the university's physical infrastructure, collective and individual behaviors, and educational mission; to engage everyone in creating a culture of sustainability; and to accomplish these objectives through just and equitable means. This will require significant infrastructural changes, cultural shifts, and strategic planning to ensure success.

Additionally, the university has adopted major initiatives to increase affordability and access for students and to become a top 100 global research university. The Climate Action Commitment is an essential bridge policy for achieving both of these goals and represents a core pillar of the university's land-grant mission.

Virginia Tech Climate Action Commitment History

During Earth Week in April 2008, as a result of student and faculty advocacy efforts, 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. On April 22, 2009, the University Council voted to recommend approval of Virginia Tech's first Climate Action Commitment and accepted the accompanying Sustainability Plan. On June 1, 2009, the Virginia Tech Board of Visitors unanimously approved the Virginia Tech Climate Action Commitment, and it became Presidential Policy Memorandum 262. The commitment included 14 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. University Council approved the revision on May 6, 2013.

On November 8, 2019, Virginia Tech President Tim Sands released a statement in response to a climate strike held by students on campus in which he stated, "climate change represents one of the world's most pressing problems and as a global land-grant university, Virginia Tech has a duty to respond." Within his statement was a charge to update the Virginia Tech Climate Action Commitment.

In response, the Virginia Tech 2020 Climate Action Commitment Working Group was established consisting of over 150 students, faculty, staff, and community members. The group worked to produce the Virginia Tech 2020 Climate Action Commitment which was presented to the Board of Visitors on November 15, 2020. Over the next three months, a dozen key operations and finance personnel at the university conducted a high-level review of the costs to implement the commitment. This financial analysis was presented to the Virginia Tech Board of Visitors on March 21, 2021, and the Climate Action Commitment was approved unanimously. The 2020 Climate Action Commitment includes 15 goals for advancing long-term university sustainability over the next ten years.

The actualization of the 15 goals depends on comprehensive planning, unparalleled collaboration, and a shared pledge to advancing sustainability. Through broad university participation and collaboration, Virginia Tech has made tremendous progress, but still has more to do. The Sustainability Annual Report provides an update on the university's progress towards each of the goals.

Sustainability Plan

Virginia Tech 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 its Sustainability Plan. The STARS report consists of over 60 topical areas which fall into one of four categories: academics, engagement, operations, and planning and administration. Additional credit is earned for unique initiatives that are not otherwise covered in the STARS report. Data and information submitted are measured against a national standard, and points are earned for each credit. Total points earned yield an overall rating of Bronze, Silver, Gold, or Platinum.

Virginia Tech has received six STARS ratings: Silver in 2011, Silver in 2013, Gold in 2014, Gold in 2017, Gold in 2021 and Gold in 2024. For the 2024 Gold rating, Virgina Tech earned 73.17 points; this is the highest score Virginia Tech has received, continuing the trend of self-improvement that has been observed since the submission of Virginia Tech's first report in 2011. The STARS Gold rating is valid for three years. When it is time to pursue STARS again in 2027, it will be under a newly revised version of STARS that raises the standard for sustainability in higher education.

Office of Sustainability

On June 1, 2009, following the approval of the original Virginia Tech Climate Action Commitment, the university established the Office of Sustainability. Recognized as the university department overseeing climate action initiatives, the Office of Sustainability has the following duties and responsibilities:

+ Coordinate programs for campus sustainability
+ Oversee implementation of the Virginia Tech Climate Action Commitment and Sustainability Plan
+ Monitor annual electricity/energy use and GHG emissions in collaboration with the Office of Energy Management
+ Work with faculty and departments to develop programs that utilize the campus as a sustainability laboratory
+ Coordinate communication regarding campus sustainability initiatives and programs to the university community and external audiences

Climate Action, Sustainability, and Energy Committee

Virginia Tech established the Energy and Sustainability Committee on April 30, 2007 as part of adopting the university's original Climate Action Commitment. At the time, the committee was unique in that it had the broadest membership of any committee and included four student representatives rather than two. As part of the 2020 Climate Action Commitment, the Energy and Sustainability Committee was reevaluated, restructured, elevated, and renamed to the Climate Action, Sustainability, and Energy (CASE) Committee.

The CASE Committee's charge is "to provide guidance to the university administration on implementation of the university's Climate Action Commitment and opportunities to enhance Virginia Tech's pursuit of environmental quality and social sustainability." The committee makes recommendations regarding the application of policies; infrastructural and operational changes; educational strategies and modifications; and other steps intended to foster broad engagement with the university's environmental goals. The committee oversees ten subcommittees that each execute aspects of the committee's charge. In addition to broadening the charge, the committee also reevaluated and expanded its membership to include members from underrepresented and economically disadvantaged groups in line with Virginia Tech's commitment to frontline communities and climate justice, which is unique among all shared governance entities and reflects a commitment to climate justice.

During the 2024-25 academic year, the CASE Committee oversaw ten subcommittees to target implementation strategies, policies, and planning efforts for the goals of the 2020 Climate Action Commitment. These subcommittees are strategically essential for making progress toward the top-level goal of carbon neutrality by 2030. Additionally, they include members from across the university, including some who are outside of the core

CASE Committee membership, which helps to institute climate action as a broader priority and communicate Climate Action Commitment progress across the institution.

Office of Sustainability Partners

The Office of Sustainability collaborates with faculty, staff, students, and community members from across various colleges, departments, and organizations. This collaborative spirit is necessary to meet Virginia Tech's sustainability goals. Building a culture of sustainability would not be possible without the collective efforts of the entire campus, and partners of the Office of Sustainability play a critical role.

Awards and Recognition

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

Times Higher Education Impact Rankings

After making its debut in the Times Higher Education Impact Rankings in 2021, Virginia Tech now finds itself ranked in the top 201-300 out of over 2,500 institutions worldwide for 2025. The Times Higher Education Impact Rankings are a global performance metric that assesses universities against the United Nations Sustainable Development Goals (SDGs). The rankings use calibrated indicators to compare universities across four areas: research, stewardship, outreach, and teaching.

Virginia Tech's ranking was supported by the university's high marks across multiple SDGs, with a top ranking of 53rd in the SDG of Responsible Consumption and Production. In addition, Virginia Tech maintained top 100 worldwide rankings in Zero Hunger (SDG 2) and Life on Land (SDG 15).

WORLDWIDE TOP
100 rankings in Zero Hunger (SDG 2) and Life on Land (SDG 15)

Virginia Tech Dining Services

Dining Services continues to lead the campus community in sustainability efforts. Virginia Tech Dining Services remains an active member of the National Association of College and University Food Services (NACUFS). The Dining Services team is proud to support a program that promotes sustainable efforts across various universities. In 2025, Dining Services received the Gold award for NACUFS Sustainable Procurement. This award recognizes university operations with the best sustainable procurement programs including, but not limited to, programs with an emphasis on buying local, animal welfare, sustainable seafood, carbon footprint, and social equity.

Virginia Tech Sustainable Transportation

The Sustainable Transportation Department seeks to meet all the travel needs of students, faculty, and staff in healthy and environmentally friendly ways. Virginia Tech has been named one of the 2025 Best Universities for Commuters. Best Universities for Commuters demonstrate that options for commuting such as public transit, carpooling, vanpooling, and teleworking are economically and environmentally beneficial, yielding value to workers, employers, and our communities.

Virginia Tech also holds a Gold ranking as a Bicycle Friendly University through the League of American Bicyclists. Virginia Tech has been recognized as a Bicycle Friendly University since 2013.

Tree Campus Higher Education

For the seventeenth consecutive year, Virginia Tech has been recognized for its best practices in campus urban and community forestry through the Arbor Day Foundation's Tree Campus Higher Education program. Launched in 2008, Tree Campus Higher Education is a national program that honors colleges and universities for effective campus urban forest management and engaging students, faculty, and staff in conservation goals. Virginia Tech achieved Tree Campus Higher Education 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. Thousands of trees have been planted across campus since 2008 and they serve as one of the most visible representations of Virginia Tech's commitment to environmental stewardship.

International Society of Arboriculture Gold Leaf Award

Virginia Tech received an International Society of Arboriculture Gold Leaf Award in October 2024. The Gold Leaf Award recognizes outstanding Arbor Day activities that have a significant impact upon a community, and it was awarded to Virginia Tech for the 2024 Arbor Day observance and celebration. This celebration, outlined in the 2023-24 Sustainability Annual Report, resulted in 14 new trees being planted in front of the Sterrett Center. Participants learned how tree planting sites are selected and prioritized and proper tree planting techniques were demonstrated to the volunteers. This event was organized in partnership with the Urban Forestry team, the College of Natural Resources and Environment, the 2024 Earth Week Planning Committee, and Students for Sustainable Practices, a registered student organization.

Bee Campus USA

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2024-25 SUSTAINABILITY PROGRESS

1. Carbon Neutrality

"Achieve a carbon neutral campus by 2030."

Carbon neutral is defined as net-zero emissions of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) by Virginia Tech operations on the Blacksburg campus based on the geographic and Greenhouse Gas (GHG) scope of the 2020 Climate Action Commitment. The initial scope of the 2020 Climate Action Commitment includes all Virginia Tech-owned lands and buildings on the campus, buildings leased by university departments in Blacksburg, and agricultural/forestry operations and lands in the Blacksburg region.

The GHG scope includes:

+ Scope 1 emissions from campus direct fuel use,
+ Scope 2 emissions related to purchased electricity (generation CO2 and N2O transmission/distribution losses), and
+ Scope 3 emissions related to campus behavior (commuter driving, transit bus fuel, waste/recycling/compost, water/wastewater, aviation fuel, and commercial business travel).

Greenhouse Gas Inventory and Assessment Report

The Greenhouse Gas Inventory and Assessment Report:
vt.edu/content/dam/vt_edu/sustainability/ghg/GHG-Inventory-Report-2023.pdf

Since 2007, Virginia Tech has been monitoring GHG emissions from direct and indirect sources to assess its carbon footprint. In general terms, it is the amount of carbon dioxide (and other gases) that are produced or emitted during normal campus operations. It is often associated with the burning of fossil fuels for energy or transportation, but GHG emissions can result from many other sources. The Greenhouse Gas Inventory and Assessment Report is a quantitative analysis, critical for driving planning, policies, and operations that will continue to result in emissions reductions across the university. As state, national, and worldwide leaders seek to limit or reduce GHG emissions by 2030, Virginia Tech is well positioned to do its part. As we transition the GHG emissions accounting to encompass the 2020 CAC broadened demands, we spent time creating a new protocol so that we can have strong and consistent data to work with over the next decade.

The Greenhouse Gas Inventory and Assessment Report also serves as a great resource for students, faculty, and staff to learn more about their associated impacts on the environment. As part of the 2020 CAC, the carbon we account for with the Greenhouse Gas Inventory and Assessment Report has been broadened to include Scopes 1 and 2 emissions (direct and indirect energy usage) fully as well as a significant portion of Scope 3 emissions. Scope 3 emissions correspond to activities that many of us can influence through our choices, such as commuting, purchasing, and waste management. The university will need dedicated action and support from the entire campus community to meet our goal of carbon neutrality by 2030. The GHG Assessment uses SIMAP, the Sustainability Indicator Management and Analysis Platform, developed by the University of New Hampshire.

This report was published in 2024 using 2023 data. The Office of Energy Management, the Sustainability Office and Dr. Sean McGinnis from the Green Engineering program have collaborated to develop these inventories. Historically, this project has had contributions through an experiential learning program for students.

Annual CO_2 Emissions

The following figures show the change in GHGs from calendar years 2013 to 2023. The 2024 total annual CO_2 emissions and report can be found in the 2024 Greenhouse Gas Inventory.

CY2023 shows a 4.2 percent increase in total emissions from CY2022. When compared to the baseline year of 2019, there was a 4.4 percent decrease in total emissions.

This increase is due to a couple of factors. The Power Plant generator was offline for six months in 2023 for necessary maintenance, requiring additional electric power purchase from the University's utility provider. Virginia Tech's CY2023 GHG Scope 2 emissions were primarily composed of utility provider-purchased electricity, which had a high intensity of carbon dioxide. The higher CO_2 emissions factor is due to an increase in coal-fired generation at the utility provider level.

FIGURE 1. ANNUAL CO_2 EMISSIONS (CALENDAR YEAR)

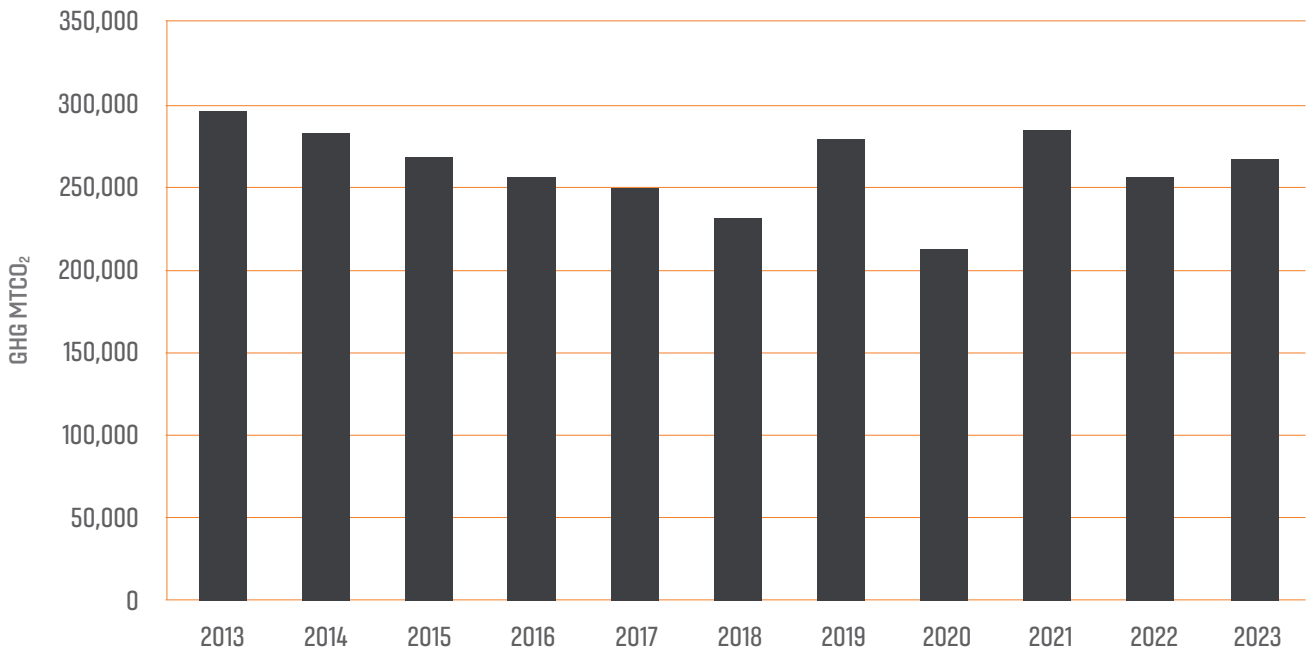


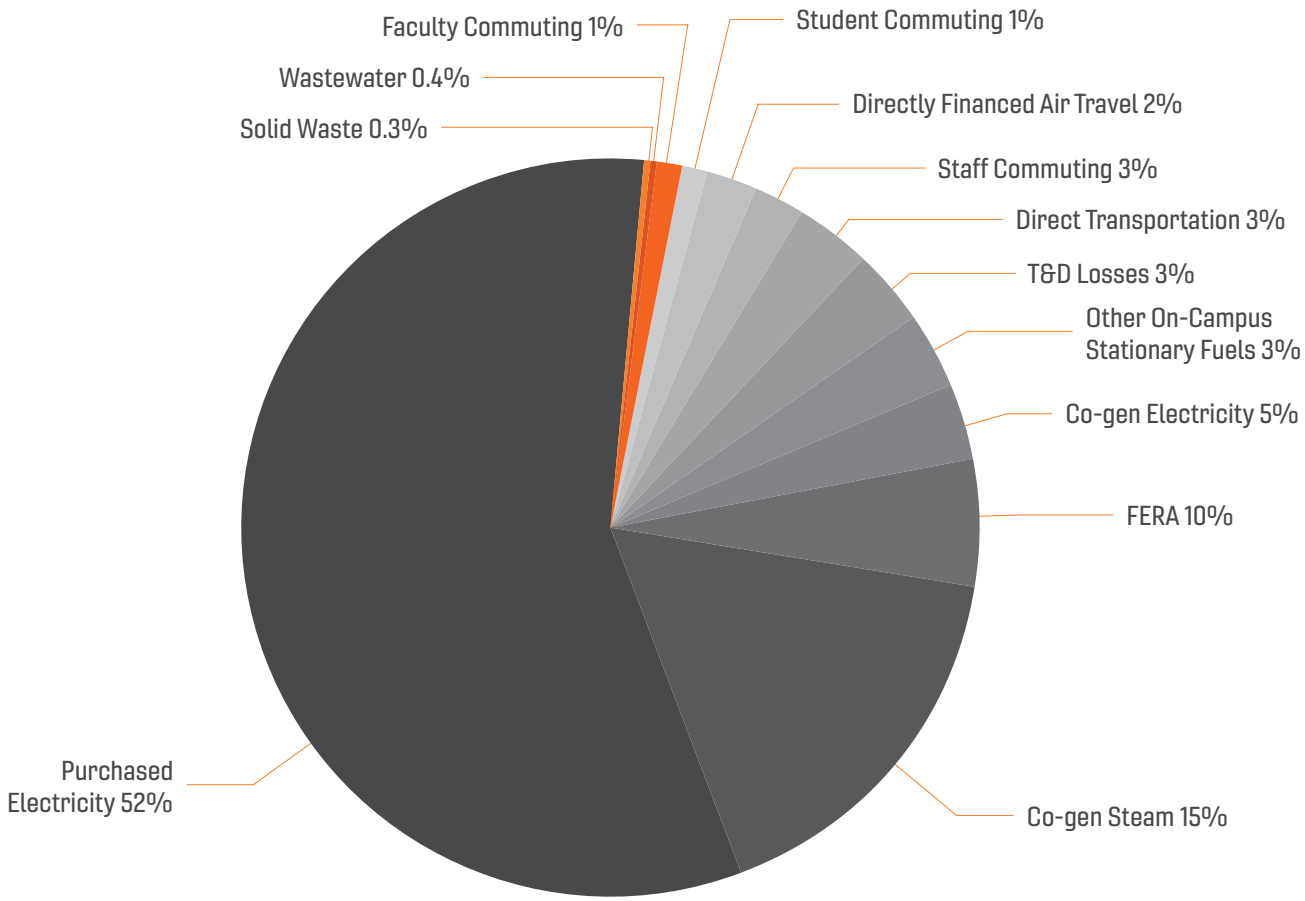
TABLE 1. SUMMARY OF ANNUAL GREENHOUSE GAS EMISSIONS BY SCOPE (CALENDAR YEAR)

Scopes	2019 (MTCDE)	2021 (MTCDE)	2022 (MTCDE)	2023 (MTCDE)	2024 (MTCDE)
Scope 1	115,021	96,317	102,609	76,261	See 2024 GHG Inventory
Scope 2	124,166	152,823	127,842	139,140	See 2024 GHG Inventory
Scope 3	42,148	36,474	29,986	52961	See 2024 GHG Inventory
Total	**281,335**	**285,614**	**257,437**	**268,362**	**See 2024 GHG Inventory**

Overall, the GHG emissions increase in 2023 is small and primarily due to grid-purchased electricity. In the calendar year 2023, new buildings contributed about 1.5 percent additional area to the Blacksburg campus space. While these buildings are LEED certified high performance buildings, they still contribute additional energy loads. Additionally, there was a small increase in electricity for the Blacksburg Transit electric bus fleet.

The nearby pie chart shows the distribution of GHG emissions by source for the 2023 calendar year. The largest source of GHG emissions is purchased electricity (52 percent) followed by co-gen steam (15 percent).

FIGURE 2. GHG EMISSIONS BREAKOUT CY2023



Local and Campus Sourced Food

Virginia Tech Dining Services remains committed to sustainability, with a continued emphasis on sourcing locally, organically, and ethically. Building on last year's implementation of an internal system that requires all new food products to be tagged as local and/or organic before entering campus, Dining Services has maintained and expanded this practice to enhance transparency and traceability within the supply chain.

Over the past year, Dining Services has strengthened their relationships with key food vendors, placing a heightened focus on sustainable and ethical sourcing. Guided by the AASHE STARS framework, purchasing decisions and tracking protocols have become more aligned with measurable sustainability goals. The ongoing collaboration with vendors has improved the tracking of sustainable and ethical purchases, and Dining Services is committed to using this data to inform future procurement strategies.

One of the most impactful changes this year has been streamlining the ordering process with Dining Services' main produce vendor. Dining Services has added local product options directly into unit user guides, making local sourcing more accessible and top-of-mind for Virginia Tech's dining units. Additionally, Dining Services developed comprehensive purchasing protocol guides for unit managers to clarify expectations and reinforce a departmentwide commitment to increasing local food procurement percentages.

Looking ahead, Dining Services plans to analyze purchasing data to assess progress and identify further opportunities to expand sustainable and ethical food offerings in the upcoming fiscal year. By prioritizing local sourcing, Dining Services continues to reduce food miles and associated greenhouse gas emissions, reinforcing their role as a leader in campus sustainability.

2. 100 Percent Renewable Electricity

"Achieve 100 percent renewable electricity by 2030."

Solar Project

A solar energy Power Purchase Agreement (PPA) is helping boost Virginia Tech's Climate Action Commitment implementation efforts toward 100 percent renewable electricity by 2030. In 2024, 1.3 MW of solar powered generation were installed across four buildings' rooftops: Sterrett Facilities Complex, McComas Hall, Virginia Maryland College of Veterinary Medicine, and Durham Hall.

3. Energy System Efficiency and Total Steam Plant Conversion to Natural Gas

"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."

Utilities Framework

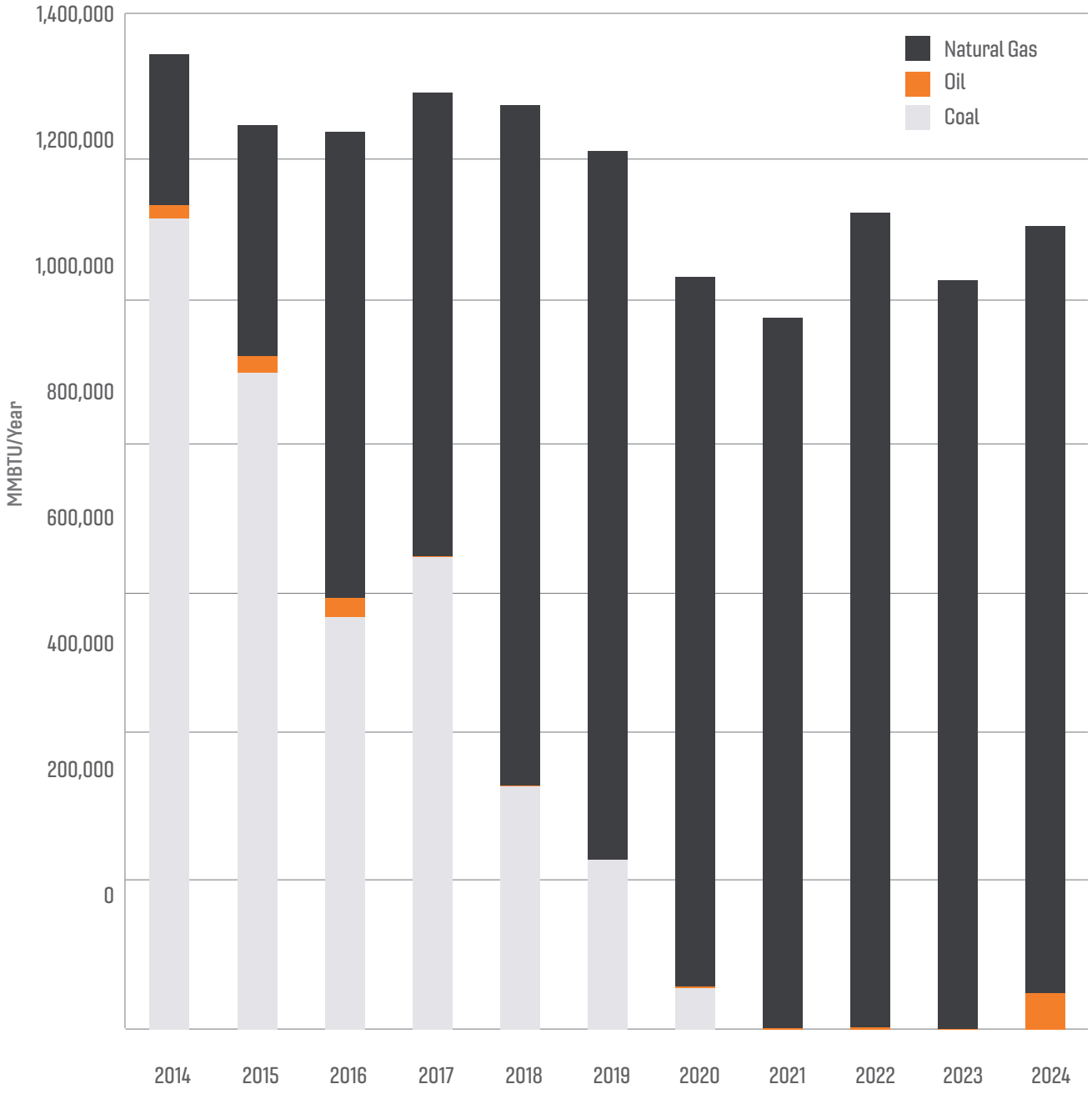
Virginia Tech is laying the groundwork to be fossil fuel free by 2050. The campus master plan's utilities framework – previously called the utilities master plan – has recently been completed and provides a comprehensive road map to align campuswide utility systems with the strategies of the Campus Master Plan and the sustainability goals of the Climate Action Commitment. The university operates and maintains numerous utility systems that will all be managed through this detailed plan. The Division of Facilities began this effort for the university's utilities in 2023. The first stage of developing the utilities framework involved taking an inventory of all current utilities infrastructure and noting its condition. Once that was finished, the planning sessions expanded to include three meetings in the fall that were focused on addressing the CAC (decarbonization, air emissions, and measures of success). Consultant group Wiley and Wilson conducted research and presented multiple options for the utilities framework to support achieving CAC goals, such as carbon neutrality and 100 percent renewable electricity by 2030. Furthermore, alternative technologies were explored, such as geoexchange, low temperature hot water (LTHW), solar power, and several others. The discussions resulted in funding geoexchange as a potential alternative energy source. The final CAC-focused session challenged Virginia Tech to think deeply about the future and opportunities to strategically position our utilities infrastructure for success in a low carbon world.

Virginia Tech Power Plant

The Virginia Tech Power Plant is a co-generation asset that produces centralized steam and simultaneously uses some of the steam as a by-product to generate up to 6.25 MW of electricity. The steam-turbine -powered generator produced 17,151,901 kWh of electricity at the plant from January 2024 – December 2024. That electricity production offsets the electricity purchased by the university for distribution across campus and within Blacksburg. Co-generation increases the thermal efficiency of the Virginia Tech Power Plant which reduces GHGs and other harmful emissions.

The nearby figures show power plant fuel consumption and GHG emissions between calendar year 2014 to 2024. Power plant GHG emissions have been reduced significantly since the change in fuel source to natural gas. Fuel consumption at the power plant increased approximately 7 percent in calendar year 2024. This can be attributed to increased electricity generation from the steam turbine/ generator compared to calendar year 2023.

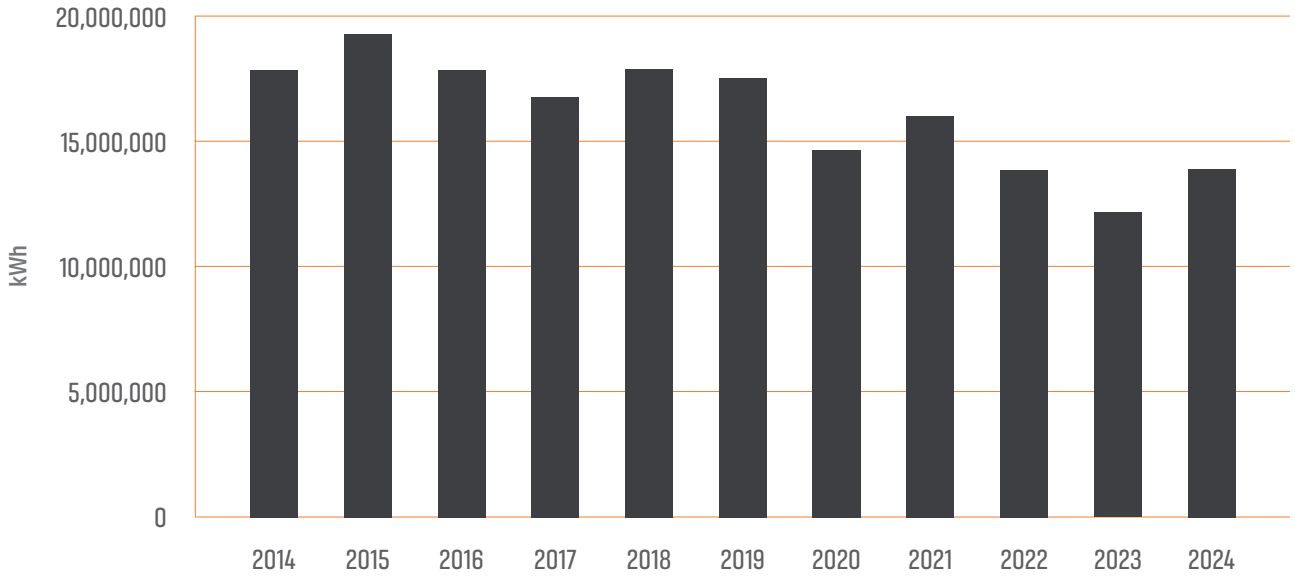
FIGURE 3. POWER PLANT FUEL CONSUMPTION (CALENDAR YEAR)



Campus Central Chilled Water System

Virginia Tech continues to improve the campus chilled water infrastructure and operations. From calendar year 2023 to 2024 there was a 14 percent increase in electricity consumption at the central chilled water plants. In the fall of 2024, the addition of Undergraduate Student Laboratory Building, Hitt Hall, and War Memorial Hall to the central chiller loop increased the square footage it served by approximately 404,000 square feet. These additions can be attributed to the increase in electricity consumption. Additionally, there were more cooling degree days in 2024 compared to 2023, further increasing the electric load.

FIGURE 4. CHILLED WATER PLANT ELECTRIC CONSUMPTION (CALENDAR YEAR)



Demand Side Management

The Division of Facilities' Office of Energy Management guides the energy efficient operation of university energy and utility systems to achieve tangible reductions in energy consumption on campus through the development and implementation of various Demand Side Management (DSM) policies and investments into energy efficiency measures, initiatives, projects, and programs.

DSM promotes energy efficiency through upgrading, retrofitting, and commissioning of energy and utilities mechanical systems for steam and chilled water, lighting systems, building automation systems, and electrical systems in university buildings. While DSM is primarily concerned with reducing on-site energy consumption and related costs, it also supports the university's commitment to sustainability. The benefits gained from the program include carbon footprint reduction, improvement of indoor air quality, asset upgrading and conservation of resources. The DSM program will help the university to be less vulnerable to sudden changes in the energy market and helps set the way toward a net zero energy future.

Virginia Tech Guidelines for Energy Efficient Design

The Division of Facilities updated its Design and Construction Standards Manual (DCSM) in 2023 to ensure that the design and construction of buildings at Virginia Tech comply with the Virginia Energy Conservation code as well as ASHRAE 90.1. The purpose of the Virginia Tech Guidelines for Energy Efficient Design is to formulate additional requirements that go beyond the applicable Energy Code and are specific to the university. The Division of Facilities 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.

Data-Driven Energy Optimization

Using data to guide decisions and achieve energy efficiency at scale is at the core of comprehensive energy management. The Office of Energy Management utilizes various digital energy management platforms to monitor and measure utility usage data in near-real time from over 1,000 flow meters. Building automation systems enable detailed building energy performance analytics, particularly for measurement and verification of energy project investment.

Through older and 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 at more granular levels. Specialists can then identify energy consumption patterns leading to optimized lighting, ventilation, heating, and air based on demand. Data visualization can also help detect irregular spikes in energy usage.

Master Metering Program

The Office of Energy Management continuously maintains, expands, and improves metering operations and capabilities. This enables not only energy optimization but also more detailed and accurate cost accounting and budgeting for stakeholders. As the Office of Energy Management expands their metering operations, several buildings have migrated to a modernized platform that enables advanced building automation and energy savings initiatives. Additionally, a new reporting platform that leverages real-time data for benchmarking and analytics capabilities has been added.

Virginia Tech Electric Service

Few universities serve the electrical needs of their surrounding communities - and none to the extent of Virginia Tech and the Virginia Tech Electric Service (VTES). VTES, the electric utility provider for the Blacksburg campus and about 7,000 residential and commercial customers in the Town of Blacksburg, has been in the business of providing primary electrical distribution service to the campus and other customers for more than 100 years. In 2024, VTES finished its retrofit of campus street lighting to LED technology and upgraded to real-time electric metering.

4. Existing Building Energy Efficiency

"Reduce building energy consumption to enable carbon neutrality by 2030."

More efficient buildings reduce GHG emissions through lowering fossil fuel emissions created by electricity, steam, and chilled water generation. Building-level energy savings initiatives are underway with many additional projects planned.

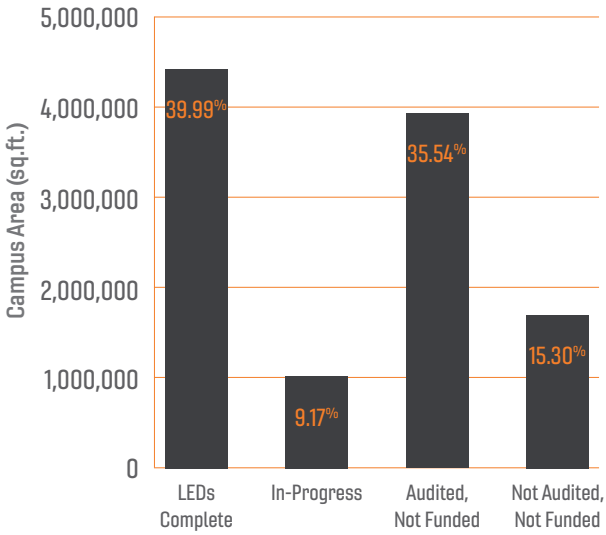
Energy Action Plan 7

The Office of Energy Management is implementing the seventh phase of the Energy Action Plan (EAP) to continue efforts for the implementation of the Virginia Tech 2020 Climate Action Commitment. Projects in EAP 7 include the development of a steam trap performance management program, an occupancy-based temperature and ventilation control project, and an LED lighting overhaul for 20 academic buildings. EAP 7 also includes an investment grade energy audit to develop a potential Energy Savings Performance Contract (ESPC).

LED Lighting Upgrades

Currently, 40 percent of the Blacksburg campus has been converted to LEDs. The current phase of LED lighting upgrade projects (EAP 7) includes the conversion of 23 buildings (~1.15M square footage). This project is expected to save approximately more than 1.5 million kWh (~$280,000). This equates to 2.2 million pounds of carbon dioxide or the impact of removing 400 cars off the road. The next phase and scope of LED lighting conversions is under development.

FIGURE 5. LED CONVERSION STATUS



Retro-Commissioning Efforts

Retro-commissioning (RCx) is a systematic process applied to existing buildings for identifying and implementing operations and maintenance improvements within the heating, ventilation, and air conditioning systems to ensure their continued high performance in energy efficient operation over time. The RCx program efforts are listed below.

Laboratory HVAC Optimization Projects

Laboratory buildings are some of the greatest energy users on Virginia Tech's Blacksburg campus. In FY2024 the Office of Energy Management inventoried ~780 fume hoods in 45 campus buildings. From this study, 11 Laboratory Buildings (879,214 square footage) were selected for a project which included HVAC retro-commissioning, recalibrating airflow monitors and Testing and Balancing (TAB). In addition to improving the energy efficiency of these labs, these projects verified safety and indoor environmental quality. This project is estimated to be completed in early FY2026.

Occupancy-Based Temperature and Ventilation Program

Energy efficient HVAC operations and management across Virginia Tech's campuses are important to reducing energy consumption. Building automation systems and room scheduler technology are utilized to optimize energy use. Buildings are operating under a new intelligent HVAC control system that integrates class schedules with the HVAC system scheduler.

In FY2025, the Office of Energy Management worked with the ICM shop to upgrade the building automation systems in ICTAS II and Goodwin Hall.

Energy Service Performance Contract (ESPC)

In conjunction with the Energy Action Plans, university stakeholders are utilizing the Virginia Department of Energy's program for Energy Savings Performance Contracting (ESPC), which would provide additional funding and resources for energy efficiency measures that also provide infrastructure and asset upgrades.

Using funding from EAP 7, 3 million square feet of the Blacksburg campus underwent an investment-grade energy audit (IGA). This audit prioritized the energy intensive Education and General (E&G) buildings on the Blacksburg campus.

IGA identified over $80 million worth of energy conservation measures (ECMs). A proposed $65 million bundle of various ECMs has been developed. This proposal is under review. The benefits include extensive asset upgrades, an eight percent decrease in campuswide GHG emissions, and a simple payback period of 15 years.

As part of the IGA, comprehensive steam trap performance testing on the Blacksburg campus was completed. The results identified a campuswide steam trap upgrade project worth $1 million having a 2.5-year payback.

Subgoals 4.1 and 4.2

4.1 – By the end of 2022 reduce electricity consumption measured in kWh by 10 percent and electricity intensity measured in kWh by gross square footage by 20 percent below 2006 levels.

FIGURE 6. CAMPUS ELECTRICITY CONSUMPTION (KWH)/AREA (SF) (FISCAL YEAR)

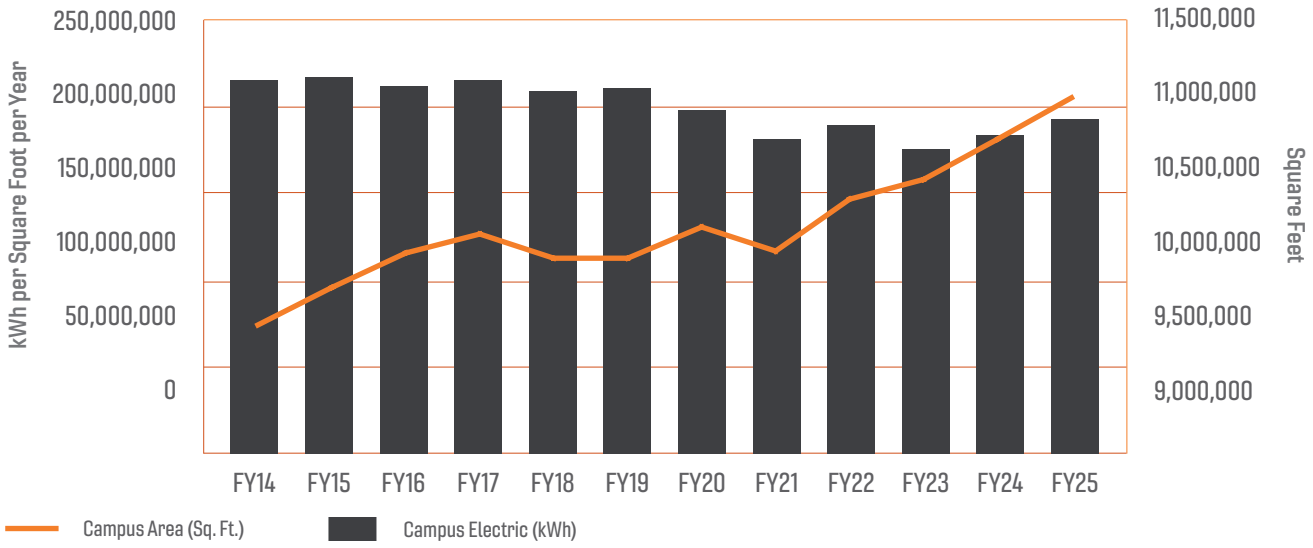
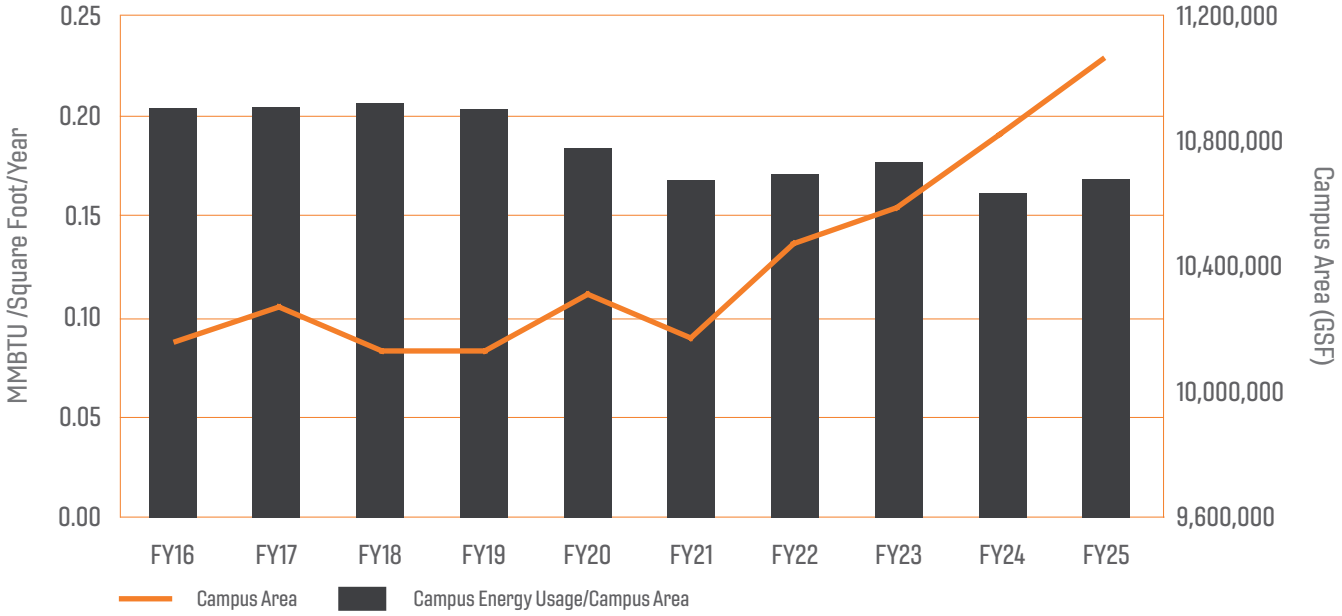


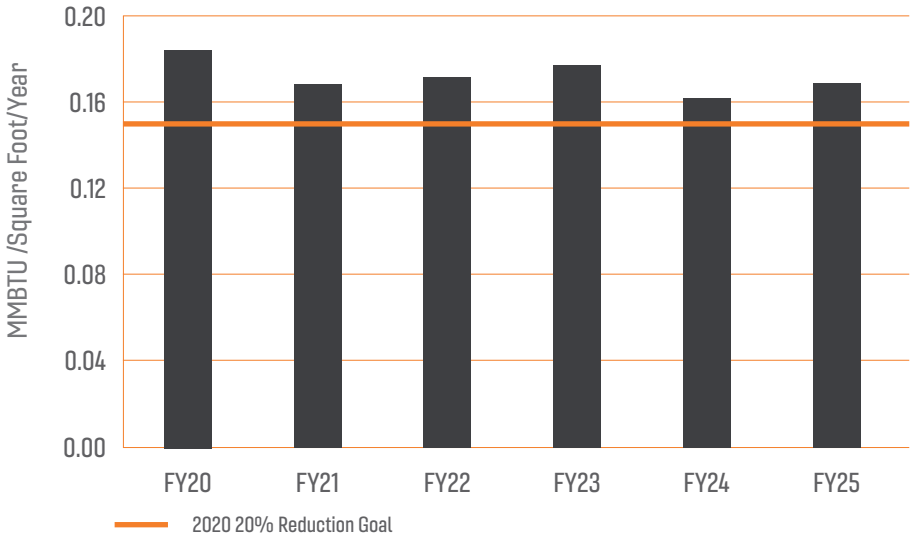
FIGURE 7. CAMPUS ENERGY CONSUMPTION AND CAMPUS AREA



4.2 – By 2030 employ energy management retrofit to reduce total energy consumption measured by BTU and kWh in all building by 10% and Energy Use Intensity measured by BTUs and kWh by gross square footage by 20% below 2020.

The energy reduction intensity of 20 percent of the 2020 EUI is demonstrated in the figure above. Virginia Tech is targeting this goal of 0.15 MMBTU/Sq. Ft./Yr by 2030.

FIGURE 8. PROGRESS TOWARD GOAL 4.2 (FISCAL YEAR)



Student Affairs Facilities and Operations

AMBLER JOHNSTON HALL FLOORING REPLACEMENTS

The second of three flooring replacement phases was completed this past year by Student Affairs Facilities and Operations. The project consisted of the removal of dated carpet and installation of durable luxury vinyl tiles. The replacement flooring contains a minimum of 39% recycled content. The new material provides a longer-lasting, less allergenic, and easier to maintain flooring option that reduces clogging of HVAC filters and improves the operation and efficiency of those systems.

5. New Building Energy Efficiency

"Operation of new buildings initiated by 2030 will be carbon neutral."

LEED Standards

Designing for high energy efficiency in new buildings is necessary to achieve and maintain carbon neutrality and sustainable operations. The U.S. Green Building Council provides the Leadership in Energy and Environmental Design (LEED) green building certification. This program scores buildings on their overall sustainability based on a points system which scores the building on various criteria such as energy and water efficiency, waste reduction, sustainable transportation options, and many more.

Virginia Tech has attained LEED certification for 29 buildings across campus, totaling over two million gross square feet of green certified building space. The university has specified that all new buildings entering the design phase of construction that are greater than 5,000 gross square feet, 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.

Virginia Tech Guidelines for Energy Efficient Design

The university's Design and Construction Standards Manual (DCSM) outlines the philosophy, standards, recommendations, and requirements for the design and construction of campus buildings. As a component of the DCSM, the Guidelines for Energy Efficient Designs address the energy efficiency and on-campus renewable energy utilization requirements for our campus buildings. These standards apply to all new construction, additions, and renovations projects on campus and are essential for fostering sustainability among new building projects.

6. Agricultural, Forestry, and Land Use Operations

"Agricultural, forestry, and land use operations will be carbon neutral by 2030."

Stroubles Creek Restoration

Stroubles Creek is an approximately 12-mile-long stream that runs through the Town of Blacksburg, the Virginia Tech campus, and Montgomery County until it empties into the New River. Virginia Tech, in partnership with the Stroubles Creek Restoration Initiative and students from various organizations across campus, has been working to repair the riparian buffer along the segment of the stream leaving campus since 2014. Restoration efforts are partially funded through proposals submitted via the Green RFP program.

In the first quarter of 2025, eleven restoration projects focused on riparian buffer establishment and monitoring were implemented. 467 volunteers contributed 2,457 hours to constructing, planting, maintaining, and improving the riparian buffer. The projects completed collectively resulted in 19,655 trees planted across 20.19 acres. These projects aim to improve riparian health, water quality, and biodiversity in Southwest Virginia.

Bee Campus USA

Virginia Tech first earned Bee Campus USA certification in spring 2022. This initiative is sponsored by the Xerces Society for Invertebrate Conservation. Bee Campus USA requirements serve as a guideline for affiliated campuses to increase their commitment to preserving native pollinators. This is achieved through developing a long-term plan to increase native pollinator habitat, providing pollinator nesting sites, reducing pesticide use on campus, and developing pollinator conservation education and outreach opportunities for the campus community.

The Bee Campus Standing Committee at Virginia Tech worked to create two new pollinator habitats located at The Visitor and Undergraduate Admissions Center with

the help of volunteers during Earth Month 2025. This work added perennial flower beds to the ends of the median in the parking lot. Species were selected for these plantings based on their compatibility with native pollinators. This effort was paired with the sowing of 12,000 square feet of White Dutch clover between the two beds. This clover helps with nitrogen fixing which improves soil health, reduces erosion, and provides more flowers for bees to pollinate.

The committee also worked to maintain existing pollinator habitats, hosting multiple maintenance days at the Hillcrest Hall and Drillfield roundabout plantings throughout the year. These efforts helped reduce the use of herbicides on these sites, further benefiting pollinators. In total, volunteers spent 130 hours in the Bee Campus USA pollinator gardens performing maintenance and helping to create new gardens. An average of 21 volunteers participated at each habitat maintenance event.

Students from the fall 2024 semester Honors 3204 Service Learning class took a field trip with the Office of Sustainability for a habitat maintenance activity. They weeded the gardens at the Drillfield roundabouts. As part of the activity, office staff talked with them about what defines a Bee Campus USA garden and how the gardens are maintained. Students from the spring 2025 Honors 3204 Service Learning class took a field trip with the Office of Sustainability which included education about the Hillcrest Bee Campus USA pollinator garden and a large, no mow area located above Grove Pond. Students helped to remove trash from both pollinator areas, the perimeter of the pond, and a Stroubles Creek outlet.

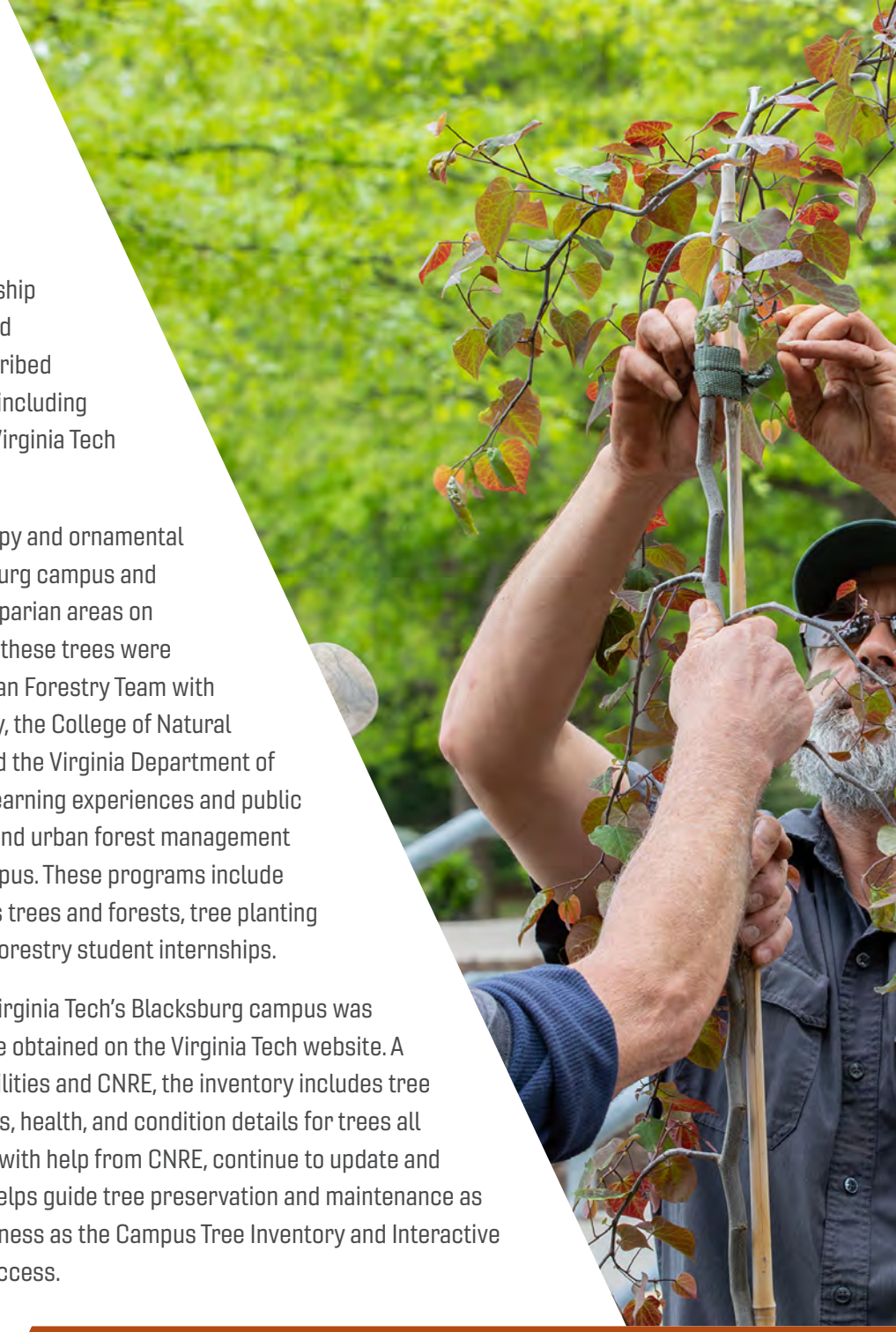
Student Affairs Facilities and Operations

OWENS HALL WASTE HANDLING

After reviewing the grease system last year, Student Affairs Facilities and Operations installed a GB-1500 hydromechanical grease trap at Owens to provide efficient and passive grease collection. This helps protect the local sewage systems from damage and operational impairment.

Urban Forestry

Trees are among the most visible representations of Virginia Tech's commitment to environmental stewardship and tree preservation, reforestation, and education. Thus, these assets are prescribed throughout key university frameworks, including the Campus Master Plan and the 2020 Virginia Tech Climate Action Commitment.



Since 2008, more than a thousand canopy and ornamental trees have been planted on the Blacksburg campus and thousands more have been planted in riparian areas on Virginia Tech lands. Since 2021, many of these trees were planted by the Division of Facilities' Urban Forestry Team with support from the Office of Sustainability, the College of Natural Resources and Environment (CNRE), and the Virginia Department of Forestry offering students immersive learning experiences and public service opportunities, all centered around urban forest management and environmental stewardship on campus. These programs include hands-on academic sessions at campus trees and forests, tree planting events throughout the year, and urban forestry student internships.

A complete field inventory of trees on Virginia Tech's Blacksburg campus was completed in 2018 and the report can be obtained on the Virginia Tech website. A collaboration among the Division of Facilities and CNRE, the inventory includes tree identity, precise location, measurements, health, and condition details for trees all over campus. The Urban Forestry Team with help from CNRE, continue to update and enhance this inventory. This resource helps guide tree preservation and maintenance as well as promoting education and awareness as the Campus Tree Inventory and Interactive Tree Map is available online for public access.

Campus Tree Inventory and Interactive Tree Map:
experience.arcgis.com/experience/b7a253574d444106861d11fcf364911f

The total value of the structural and environmental benefits provided by the trees on the Blacksburg campus was included in the 2018 inventory and analysis. The data collected as part of this project was analyzed with software developed by the United States Forest Service called i-Tree Eco, a tool that models the structure of an urban forest and how trees influence the world around them. The software then analyzes the results and quantifies the environmental benefits provided by the inventoried trees to the community. Virginia Tech's trees sequester and store enough carbon every year to offset approximately 3 percent of the carbon produced through total university operations. As trees are removed through management operations, the wood may be utilized for student academic projects, construction and woodcraft, wildlife habitat, or mulching materials, continuing the storage of carbon, sometimes for many

generations. These trees also slow the runoff of stormwater on campus, reducing severe flooding events and improving water quality. The leaves on campus trees filter particulates and pollution from the air; this air quality improvement allows the community to experience fewer respiratory health challenges. If Virginia Tech were to replace every tree recorded in the Blacksburg Campus Tree Inventory with the largest commonly available planting stock, the expense would amount to almost $31 million. This analysis does not account for the generations required for trees to mature and provide the benefits the Virginia Tech community enjoys today. These assets require continued investment in maintenance and protection to maximize tree benefits, including carbon capture and storage, for generations to come.

According to a 2020 study by Hwang and Wiseman in the College of Natural Resources and Environment, the urban tree canopy (UTC), the percentage of surface area covered with tree leaves during the growing season, at Virginia Tech is 14.7 percent. In 2019, 20.9 percent of colleges and universities in the U.S. reported having a campus tree cover goal (8.7 percent) or were currently developing one (12.2 percent). The UFMP proposes a Virginia Tech Tree Policy that establishes an UTC goal of 25 percent, an increase of tree leaf area equivalent to 108 acres, by 2050. This goal supports carbon capture and storage on campus and will contribute significantly towards campus carbon neutrality while providing all of the other environmental and social benefits described in detail above. Another assessment, conducted in 2019-2020 by students in the Urban and Community Forestry course at CNRE, utilized a sample-based photo interpretation method to determine UTC of specific campus districts. The students utilized an application called i-Tree Canopy, a software developed by the United States Forest Service, that combines aerial photographs with ecosystem models to determine estimates of land cover types and the ecosystem services provided by UTC cover at specific locations. This land cover data is created through a process called sample-based photo interpretation where analysts classify land cover types through statistical point sampling, allowing fast and inexpensive UTC reports. The i-Tree results report 16.9 percent UTC campus wide, allowing comparison of UTC and ground cover data between districts across the campus. The results only differ slightly from the earlier Hwang and Wiseman 2020 study (14.7 percent campus wide) due to differences in imagery dates and analysis methods. The final report illustrates the UTC relative to other ground covers in each zone on campus.

Districts with high UTC include Oak Lane (28.4 percent or 10.9 acres), Meadow (27.8 percent or 18.9 acres), and Drillfield (23.4 percent or 5.4 acres). The Drillfield district tree canopy is relatively high when considering the canopy is restricted to the edges of the Drillfield district. These districts show great contrast when compared to districts with low UTC like Athletics and Recreation (4.5 percent or 8.3 acres), North Academic (10.1 percent or 7 acres), and Northeast and Upper Quad (8.2 percent or 2.4 acres). This assessment informs tree planting and preservation priorities across the campus so tree benefits, including carbon capture and storage, are maximized as more complete tree planting and preservation plans are developed to maximize plantable space tree protection in districts with challenging constraints.

In fall 2023 Urban Forestry Team intern, Madeline Bryant, requested Tree Campus Higher Education application submittal data from the Arbor Day Foundation (ADF) to determine expenditure differences between Virginia Tech and peer institutions. The ADF provided data from the 14 years of the Tree Campus program for all participating land-grant institutions and Virginia Tech's SCHEV (State Council of Higher Education for Virginia) peer institutions. The data included total expenditures for urban forestry management and student populations for each year of participation in the program. The analysis revealed that Virginia Tech invests approximately $250,000 less in urban forestry than peer institutions.

Each year the University Arborist office conducts tree assessments focused on safety and preservation within the old growth forest by Lane Stadium and across the campus. These risk assessments are scheduled and executed as a means to continue the preservation of campus trees and help ensure the safety of the campus community. The proactive assessments focus on trees adjacent to pathways and campus thoroughfares. Ongoing inspections, tree risk assessments, and maintenance activities are critical tools in advancing Virginia Tech's tree preservation commitment, natural resource management goals, and the Climate Action Commitment. These assessments and operations are conducted in close alignment with the University Urban Forestry Advisory Committee and the Virginia Tech community.

For Arbor Day 2025, the Urban Forestry Team and the Earth Week Committee partnered to host a tree planting event at the Human & Agricultural Building 1. Participants learned how tree-planting sites are selected and prioritized and proper planting techniques.

7. Zero Waste Campus

"Virginia Tech to become a zero waste campus by 2030."

2024 Recycle Rate Report

In compliance with Virginia's Department of Environmental Quality, Virginia Tech completes an annual recycling rate report. These reports provide details on specific materials collected on the Blacksburg campus. For CY 2024, Virginia Tech reported 5,843 tons of principal recyclable materials collected which included 246 tons of food waste, 494 tons of paper, and 138 tons of commingled materials (single-stream recycling). Virginia Tech reported 6,630 tons of municipal solid waste (trash). The university's recycling rate was 52 percent and the waste diversion rate (waste kept out of the landfill) was 89 percent.

Waste and Recycling Team Accomplishments

Over the past year, the Waste and Recycling team has made significant strides in improving the placement, utilization, and appearance of waste containers across campus.

In an effort to enhance sanitation and usability, the Waste and Recycling team removed most of the old steel open-top outdoor waste containers. The few remaining stackable recycling containers on campus were replaced with Slim Jim units. This change improves consistency across Virginia Tech's waste and recycling program and supports a more uniform campuswide system. All front-load containers are owned and maintained by Virginia Tech's contracted hauler, Meridian Waste. The university retains ownership of other key waste receptables, including utility carts, Slim Jim indoor containers, and BigBelly units.

The Waste and Recycling team collaborated closely with project managers for new building designs to ensure that each facility is equipped with appropriate waste receptacles and the necessary infrastructure for efficient waste removal.

To improve tracking and maintenance, all BigBelly units were assigned unique QR codes and identification numbers, which have been logged into a central database. Each entry includes a photo and exact location, allowing the team to efficiently manage serving and maintenance needs. In partnership with Meridian Waste, older, unsightly containers were replaced with newer models to enhance the overall campus aesthetic.

To promote proper waste disposal, particularly the use of the waste compactors, the Waste and Recycling team developed an instructional video and collaborated with students to create additional educational content. Clear step-by-step instructions were also installed directly on the equipment.

The Waste and Recycling team organized a campuswide litter pick-up in March and conducted a comprehensive waste characterization analysis to assess contamination levels and identify areas for improvement.

Y-TOSS

Coordinated by the YMCA at Virginia Tech, the Y-TOSS program collects gently used items, such as furniture and clothing, from the residence halls during move-out. Those items are then made available to students during a fall move-in sale at greatly reduced prices. All of the profits from the sale support YMCA student programs. Collection was held from May 9-14, 2025. PODS storage containers were set up across the residential side of the Blacksburg campus to collect donated goods. With the help of volunteers, thousands of pounds of donations were collected. This program has been in place since 2006.

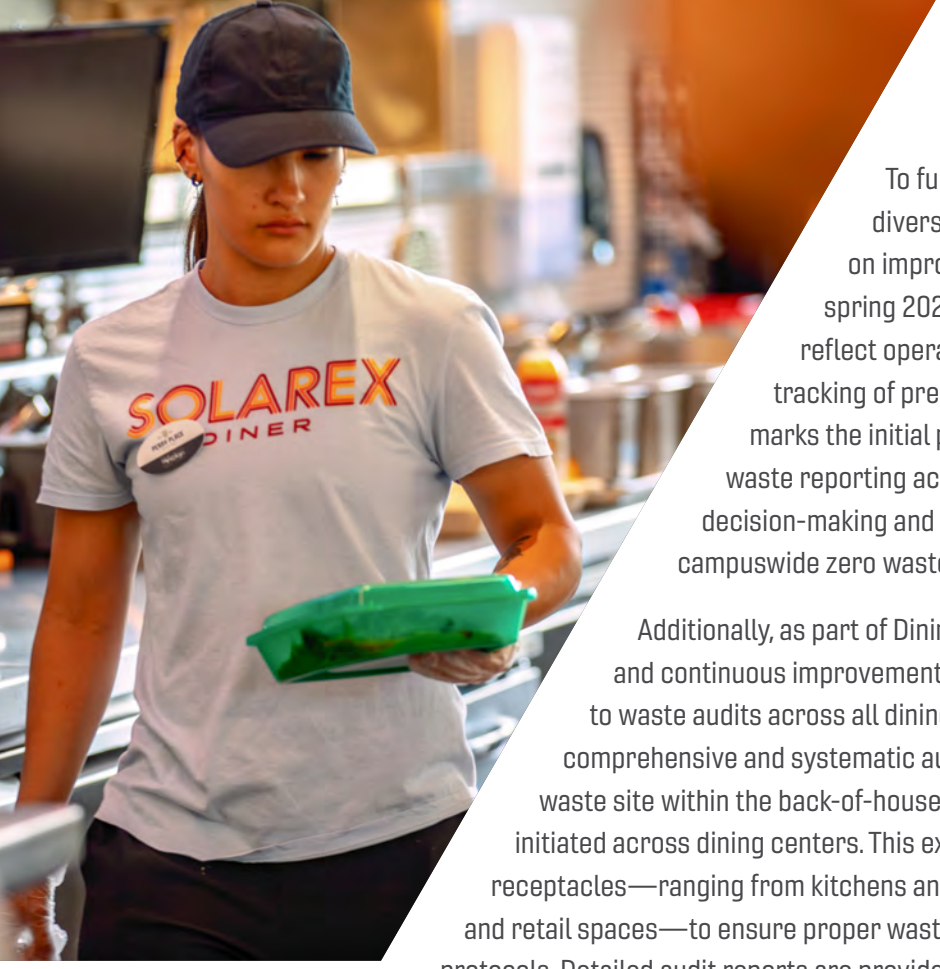
Race to Zero Waste

Virginia Tech participated in Race to Zero Waste, a competition between universities in the U.S. and Canada to reduce waste and increase recycling from January through March of 2025. Participating in this challenge helped raise awareness about waste management practices on the Blacksburg campus and educated people on the roles they play within the larger system of waste at Virginia Tech. The competition offers different levels of participation depending on a university's goals. Virginia Tech participates in three categories: diversion, per capita recycling, and food organics.

Dining Compost and Waste Reduction

Dining Services has continued to prioritize composting as a key component of their waste management strategy. Through the dedicated efforts of Dining Services staff, between 200 to 300 tons of organic waste are consistently diverted annually. While this figure reflects a slight decrease from previous years, it is largely attributed to the growing impact of the Southgate biodigester, introduced in January 2024.

Since its implementation, the biodigester has processed over 64,000 pounds of food scraps from our pre-preparation facility. This technology not only contributes to waste reduction but also supports Virginia Tech's roader sustainability goals by minimizing greenhouse gas emissions associated with transporting compost to the university's local partner, Royal Oak Farm.



To further enhance Virginia Tech's waste diversion efforts, Dining Services has focused on improving internal waste tracking systems. In spring 2025, updated waste codes designed to better reflect operational realities and facilitate more accurate tracking of pre-consumer food waste were introduced. This marks the initial phase of a broader initiative to centralize waste reporting across all dining units, enabling more informed decision-making and advancing Virginia Tech's progress toward campuswide zero waste goals.

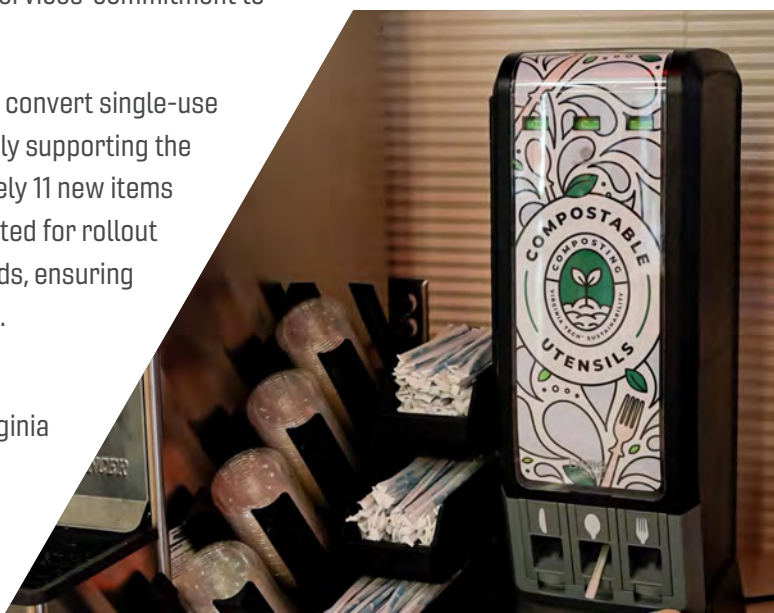
Additionally, as part of Dining Services' commitment to transparency and continuous improvement, Dining Services has enhanced its approach to waste audits across all dining operations. Over the past year, a more comprehensive and systematic audit process that now includes every waste site within the back-of-house (BOH) areas and dining center shops, was initiated across dining centers. This expanded effort involves inspecting all waste receptacles—ranging from kitchens and prep areas to dish rooms, loading docks, and retail spaces—to ensure proper waste sorting and adherence to sustainability protocols. Detailed audit reports are provided to unit leadership following each review, offering clear feedback and actionable insights to support compliance, reduce contamination, and drive ongoing improvement in our waste management practices.

Dining Services Sustainable Products

Since 2014, Virginia Tech Dining Services has offered a free Reusable-To-Go (R2G) container program designed to reduce single-use clamshell waste across campus. While previous audits revealed that low return rates hindered the program's effectiveness, significant progress has been made in the past year. In fall 2024, Dining Services piloted a new R2G tracking system at West End in partnership with a third-party vendor. The results were highly successful, with return rates increasing from a historical average of just two percent to an impressive 94–96 percent. Building on this momentum, the program was expanded to Owens Food Court in spring 2025, where return rates have remained consistently strong at 96–97 percent. Plans are underway to further expand the program to additional dining locations in fall 2025, reinforcing Dining Services' commitment to waste reduction.

In tandem with reusable efforts, Dining Services continues to convert single-use plastic products to certified compostable alternatives, directly supporting the university's zero waste goals. Over the past year, approximately 11 new items were transitioned to compostable alternatives, with more slated for rollout in the upcoming year. All items meet BPI certification standards, ensuring both environmental responsibility and regulatory compliance.

The opening of Perry Place at Hitt Hall this year provided an opportunity to integrate sustainability from the outset. As Virginia



Tech's newest dining facility, Perry Place was intentionally designed with compostable packaging as a central feature. All food items, prepared at Perry Place, are served in compostable containers. For example, sandwich wraps at Trax, condiment portion cups throughout the facility, and clear cups and lids at Amp are all compostable. Additionally, some grab-n-gobble items, supplied from Southgate Center, and available at Addison's in Perry Place, are packaged using compostable materials. As new products are introduced to this location, prioritizing compostable packaging remains a top consideration in procurement and planning.

8. Sustainable Procurement Policy

"Establish the Sustainable Procurement Policy and Procedures by 2022."

Sustainable Procurement Policy

The Virginia Tech Sustainable Procurement Policy states that, in accordance with the Virginia Tech Climate Action Commitment, 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 Procurement Department recognizes that products and services 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.

University Policy 5505: Campus Energy, Water, and Waste Reduction

University Policy 5505 plays an integral part in Virginia Tech's procurement process. This policy ensures that Virginia Tech follows the three R's of waste reduction (reduce, reuse, recycle) by minimizing waste on the front end through procurement of sustainable products as opposed to just focusing efforts on products' end-of-life disposal.

Design and Construction Standards Manual

Virginia Tech's Design and Construction Standards Manual (DCSM) outlines the philosophy, standards, recommendations, and requirements for the design and construction of campus buildings. The DCSM requires that life cycle cost and energy analyses are conducted and that their results should inform purchasing decisions for materials used within projects. The goal of these guidelines is to have more sustainability-minded design practices implemented throughout the building process.

Local and Campus Sourced Food

Virginia Tech Dining Services is focused on utilizing locally sourced and sustainable food products. The Dining Sustainability team has continued to create transparency and open communication regarding local, organic, and sustainable food expectations and goals with vendors. Sourcing locally allows Virginia Tech to reduce food miles that relate to greenhouse gas emissions.

Homefield Farm, Dining Services' 12-acre organic produce farm, is one of many campus-based producers. The College of Agriculture and Life Sciences produces eggs, milk, and various protein products (beef, lamb, and pork) that Dining chefs consistently add to their menus.

9. Transportation GHG Emissions Reduction

"Reduce single-occupancy vehicle commuting to campus by 20 percent by 2025 and reduce transportation-related GHG emissions by 40 percent by 2030."

Transit Center

The Transit Center's doors opened to the public on March 20, 2025. Located beside the Perry Street Parking Garage, the Transit Center now serves as the main hub for all Blacksburg Transit (BT) routes on campus. With 17 covered bus bays divided among two loops, a lounge area for BT drivers, and space dedicated to Virginia Tech's sustainable transportation efforts, the facility is a critical piece of both the university's focus on mobility and a broader regional collaboration.

The Transit Center anchors Virginia Tech's ongoing push to reduce reliance on personal vehicles and prioritize multimodal transportation. The Orange and Maroon loops — positioned on either side of the building — support the Campus Shuttle, running bidirectionally to ensure faster and easier campus access. The loops also support 16 additional Blacksburg Transit routes and regional transit service from several partners, making one central location for all transit service on campus.

The first floor of the Transit Center includes a rider waiting area, restrooms, shower and changing facilities, and the Hokie Bike Hub. The second floor provides a dedicated break area for BT drivers as well as office space for the university's Sustainable Transportation team.

As a result of the Transit Center opening, and all the accompanying changes to BT routes that improved efficiency, fiscal year 2024-25 ridership increased by 24 percent to over 4.7 million riders.

Top 3

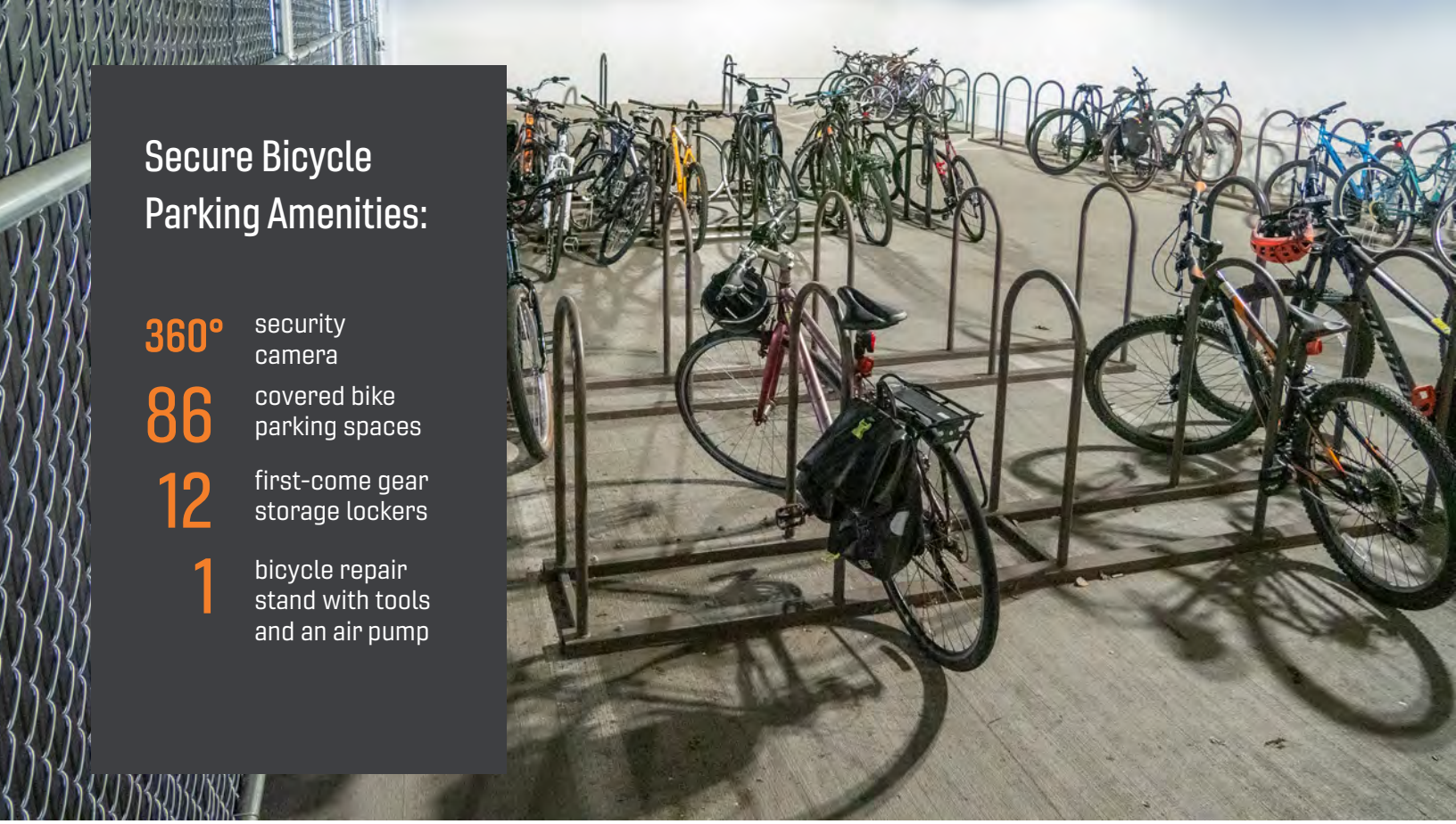
reasons for visiting the Hokie Bike Hub:

1. Pumping/repairing flat tires
2. Routine maintenance
3. Brake issues

Hokie Bike Hub

The Hokie Bike Hub is a free learning laboratory dedicated to empowering Virginia Tech cyclists by giving them access to tools and one-on-one help for self-service bike repair. They can also attend bike maintenance workshops and other cycling-related 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. By reducing barriers to fixing bicycles, the Hokie Bike Hub helps people continue to bicycle after encountering repair and maintenance needs.

The Hokie Bike Hub moved from the Perry Street Parking Garage to the new Transit Center Building in mid-March. This larger and more prominent location has led to opportunities to grow class offerings, as well as an increase in visitors.



Secure Bicycle Parking Amenities:

360° security camera

86 covered bike parking spaces

12 first-come gear storage lockers

1 bicycle repair stand with tools and an air pump

Secure Bicycle Parking

Virginia Tech affiliates can now access secure bicycle parking on Level 1 of the Perry Street Parking Garage. This shared parking area is behind a locking door to which only users of the facility have access. Users are required to pay a fee for 24/7 access. The facility offers easy access to two showers and changing areas in the adjacent Transit Center building.

GobblerGears

Gobbler Gears, the university's long-term bicycle rental program, has been in operation for a year and a half. The program allows students to rent bicycles, equipped with front and rear lights and a lock, in one or two semester periods. Renters receive a helmet that is theirs to keep, as well as free maintenance and repair during the rental period. Before renting a bicycle, participants are required to complete the online Heads Up Hokies course, which provides basic knowledge on how to bicycle predictably in different types of cycling infrastructure. Despite the fleet growing to 20 bicycles over the summer to help meet demand, over 80 people expressed interest in renting a bicycle last fall. Interest in the program carried over into the spring and summer, and Sustainable Transportation was able to execute 29 rental agreements during fiscal year 2024-25.

Bike Census

1,797 bikes and e-scooters were counted during the 2024 bike census.

342 were e-bikes or e-scooters.

The bike census is an annual assessment in which a point-in-time count of bicycles and bike parking conditions is conducted. Sustainable Transportation performed this year's bike census on October 3, 2024. Data collected includes bike rack condition and utilization percentage at each rack, as well as verification of other information. Two new data points were collected in 2024 – number of e-bikes and number of e-scooters – which will allow for monitoring of e-bike and e-scooter adoption. Sustainable Transportation identified highly utilized bicycle racks from the data and will work to increase capacity in those areas. Bike racks in poor or fair condition were also noted so that they can be repaired/replaced in the near future.

Electric Vehicle Charging Stations

The Perry Street Parking Garage now includes two new electric vehicle charging stations. Installed as part of the Transit Center project, each station includes two plugs to support a total of four vehicles. The charging stations launchedin April and are the first publicly available charging stations in the North Academic District of campus. Their proximity to the Transit Center allows for easy access to other parts of campus.

With these additional charging stations, Virginia Tech now has six publicly available EV charging stations on its Blacksburg campus (three already exist in the Squires Lot, and one more is at Fleet Services). All of the units are level 2 charging stations with two plugs each. One of the plugs at Fleet Services is assigned to their electric vehicle, while the other is public.

During FY24-25, 2,600 charging sessions were initiated by over 400 unique drivers, and their use resulted in the avoidance of 27,077 kg of GHG emissions.

10. Climate Action Living Laboratory

"Integrate the Climate Action Commitment into Virginia Tech's educational mission through the Climate Action Living Laboratory (CALL) beginning in 2021."

The Climate Action Living Laboratory, or CALL, was designed as a way to integrate the operational and academic arms of the university in order to: (1) improve experiential learning opportunities for students, (2) elevate research projects by opening up the Blacksburg campus as a laboratory, and (3) facilitate the infrastructural transition to a more sustainable built environment. The vision of the CALL is to "integrate students and faculty with staff through a collaborative framework to achieve the 2020 Climate Action Commitment. Through transformative research, teaching and learning, and service, the CALL will support a sustainable, equitable built and cultural environment for campus and the surrounding community."

Climate Action Living Laboratory Poster Showcase

The Climate Action Living Laboratory (CALL) Poster Showcase was organized by the Office of Sustainability and the Honors College as part of Earth Month 2025. During the poster session, students presented projects related to the CALL and climate action across campus. Faculty from across the university viewed these posters and discussed their topics with the students, opening a dialogue on sustainability across campus.

Experiential Learning Partnerships

The Office of Sustainability has continued its long history of working with staff, faculty, and students to build climate action learning opportunities. In the 2024-25 academic year, the Office of Sustainability partnered with five classes from a variety of colleges and departments across campus. Some of these partnerships were continuations of annual projects while others provided new opportunities for creative problem solving and unique educational experiences.

FALL 2024

UH 3204 HONORS SERVICE LEARNING – Students worked in small groups to tackle projects centered around: Developing a Sustainability Volunteer Management System, Green Office Certification Reinvigoration, Greenhouse Gas Emissions Inventory Dining/Food Data Analysis and Protocol, and Food Access Outreach Videos. At the end of the semester, the students presented these projects to the Honors College.

MKTG 4644 MARKETING AND SOCIETY – Students worked in small groups to create a marketing campaign that would target a sustainable behavior on campus or create a culture of sustainability. This included topics related to campus waste, recycling, food insecurity, energy usage, and water conservation. At the end of the semester, the students presented these projects to the Office of Sustainability staff so that the office could choose one or two projects to implement next academic year in partnership with senior instructor Tom Reilly.

SPRING 2025

UH 3204 HONORS SERVICE LEARNING – Students worked in small groups to tackle projects centered around: Adapting CALL Spotlight Template Design and Creation of CALL Spotlights and Online Gallery, Virginia Tech CAC Review Analysis, Virginia Tech CAC Climate Justice History and Benchmarking, and Student Food Security Equity Outreach and Listening Sessions. At the end of the semester, the students presented these projects to the Honors College and other campus partners.

MKTG 4644 MARKETING AND SOCIETY – Students worked in small groups to create a marketing campaign that would target a sustainable behavior on campus or create a culture of sustainability. The targeted behaviors were often related to campus waste, composting, energy usage, and single use items. At the end of the semester, the students presented these projects to the Office of Sustainability staff so that the office could choose one or two projects to implement next academic year in partnership with senior instructor Tom Reilly. The independent study (MTKG 4664) is currently in development for next fall.

SBIO 3984 SUSTAINABLE IMPACT ACADEMY – Students built a scientific foundation and developed analytical skills through short 20-minute pre-class videos. In class sessions, they combined reflective discussions of the material with focused, problem-based work. Thirteen professors from the College of Natural Resources and Environment developed short online lectures for the spring cohort, covering topics such as biomaterials, nutrient cycles, circularity, sustainable packaging, the built environment, urban ecology, and social science. Students also collaborated with faculty from the College of Engineering on green technology and innovation in water systems, faculty from the Pamplin College of Business on sustainable business. Students also stepped out of the classroom to find a solution to a problem-based learning experience. They used real-world data to analyze water consumption and energy use in Patton Hall. The student-led analysis of Patton Hall's water and energy use, conducted in partnership with the Office of Energy Management and Office of Sustainability, culminated in a Green RFP and presentation.

Climate Action, Sustainability, and Energy Committee's Climate Action Living Laboratory Subcommittee

The Climate Action Living Laboratory (CALL) subcommittee convened in the fall semester 2024 to update and reconnect with members. There was a review of the CALL vision that was created with support from fall 2023 UH 3204 class: "The Virginia Tech Climate Action Living Laboratory (CALL) will integrate students and faculty with staff through a collaborative framework to achieve the 2020 Climate Action Commitment. Through transformative research, teaching and learning, and service, the CALL will support a sustainable, equitable built and cultural environment for campus and the surrounding community."

Attention was given to the CALL Framework Report that detailed results from the facilitated staff-faculty-student activity in spring 2024 CALL showcase that can provide a roadmap for prioritized projects. CALL course progress was discussed which included: the Honors Superstudio Agrivoltaics at Virginia Tech showcase and the Honors Service Learning Sustainability Living Laboratory student poster presentations.

GOALS OF THE SUBCOMMITTEE WERE REVIEWED WHICH INCLUDE:

GOAL 1 – Shape subcommittee's role to advance Goal 10 through courses and research on a project-by-project basis and to use the subcommittee to advance the Virginia Tech CAC as policy to enable the CALL, including administrative commitment, resources, and high-level (e.g., director/chief sustainability officer) and program support positions.

GOAL 2 – Participate in Virginia Tech CAC revision process, extend the CALL project spotlight effort launched in spring 2024 UH 3204 course to create a repository for CALL work completed to date, and document gaps in resources, support, and progress toward Goal 10 and Virginia Tech CAC.

GOAL 3 – Explore new opportunities and partnerships with university Libraries staff and through Bridge Program course opportunities for CALL.

The Climate Action Living Laboratory (CALL) subcommittee convened again in the spring semester 2025. CALL course progress was discussed which included UH 3204 Honors Service Learning Sustainability Living Laboratory projects, an overview of the new Sustainable Impact Academy course through CNRE, and the Marketing and Society class through Pamplin College of Business.

ADDITIONALLY, SUBCOMMITTEE PRIORITIES WERE REVIEWED WHICH INCLUDE:

PRIORITY 1 – Document success. UH 3204 students documented CALL projects through spotlights and developed a template for future use. The Honors College supported a web-based gallery in summer 2025.

PRIORITY 2 – Distinguish barriers and opportunities for improvement. UH 3204 students gathered feedback from members on barriers, gaps, needs, and opportunities for the CALL to inform Virginia Tech CAC assessment data.

11. Climate Justice

"Establish climate justice as a core value of the Virginia Tech Climate Action Commitment."

Climate Action, Sustainability, and Energy Committee's Climate Justice Subcommittee

The Climate Justice subcommittee developed three working groups over the course of the 2024-25 academic year which focused on the assessment of climate justice implementation efforts and the current campus climate regarding justice, recommendations for climate justice work, and listening sessions to receive feedback. The assessment and recommendations working groups worked asynchronously to provide preliminary internal reports on climate justice progress and suggestions which informed the efforts of the listening sessions working group. The listening session group then hosted a session during Earth Month 2025, designed to get feedback from the campus and surrounding community on climate justice efforts.

12. Sustainable Choices and Behavior

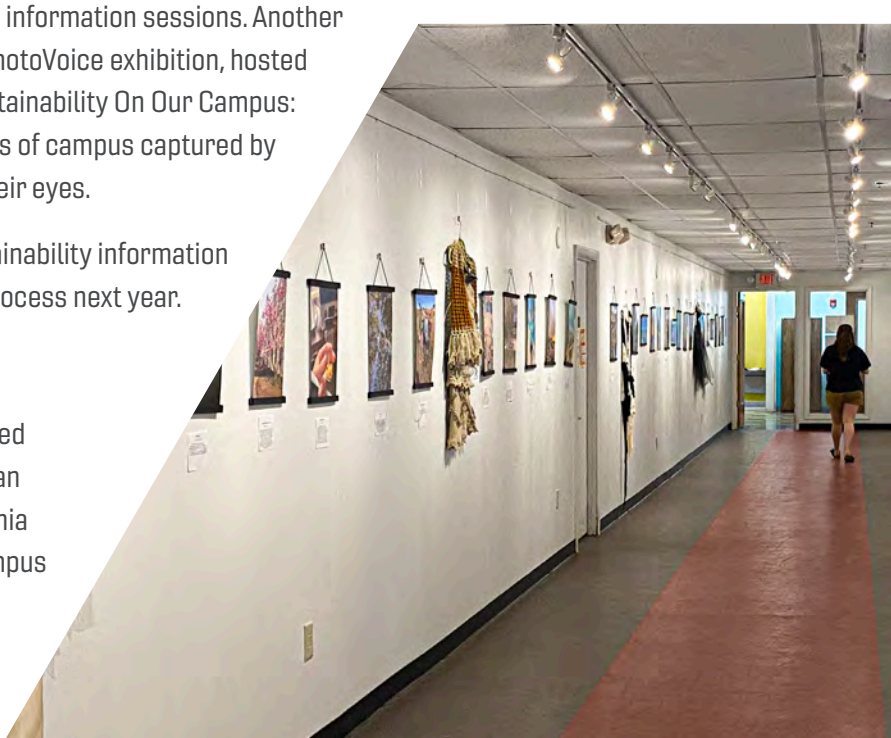
"Diminish barriers to sustainable behaviors through institutional change, education, and social marketing."

Climate Action, Sustainability, and Energy Committee's Sustainable Campus Culture, Engagement, and Sustainable Choices Subcommittee

Throughout the 2024-25 academic year, the Sustainable Campus Culture, Engagement, and Sustainable Choices (SCCESC) subcommittee continued to work towards eliminating barriers to sustainable behaviors on campus. Engaging students, faculty, and staff is an essential component in creating a culture that supports sustainable choices on campus.

The Sustainable Labs Working Group, hosted under the SCCESC, met monthly to discuss the Green Lab Certification program, the Freezer Challenge, a Shut the Sash campaign, and more, promoting these programs across campus through tabling efforts, emails, and information sessions. Another project of the SCCESC was the development of a PhotoVoice exhibition, hosted at the YMCA Thrift Store gallery in Blacksburg. Sustainability On Our Campus: Stories Through Photography featured photographs of campus captured by students that exemplified sustainability through their eyes.

The SCCESC is hoping to focus on integrating sustainability information and opportunities into the employee onboarding process next year.



Weeks of Welcome

Weeks of Welcome is part of Virginia Tech's extended orientation and transition experience. It serves as an opportunity for students to find their place at Virginia Tech and meet people while learning about the campus

community. At the start of the fall semester, Dining Services, Sustainable Transportation, the Waste and Recyling team, and the Office of Sustainability gave a joint presentation to students covering sustainability on campus.

Green Office Certification

The Green Office Certification program gives faculty, staff, and students the tools they need to become greener Hokies working in more sustainable office areas. The goal of the program is to help employees reduce their footprint and improve the overall well-being of our planet. Virginia Tech's Climate Action Commitment outlines goals surrounding energy efficiency, waste minimization, and greenhouse gas reductions. The Green Office Certification program mirrors these categories and gives employees an opportunity to directly help the university achieve its climate action goals.

Offices can participate by identifying a Green Representative who completes a training session through the Office of Sustainability. In this training, they gain the skills and knowledge necessary to create a greener workplace. Once the Green Representative completes their training, they unlock the Green Office Certification form, which they use to work with their colleagues to complete tasks and become more sustainable. Offices are scored in the following categories: energy, transportation, events and meetings, purchasing, recycling and waste production, and innovation. Offices are then awarded either Bronze, Silver, Gold, or Platinum Green Office Certification. There are currently 19 participating offices across the Blacksburg campus.

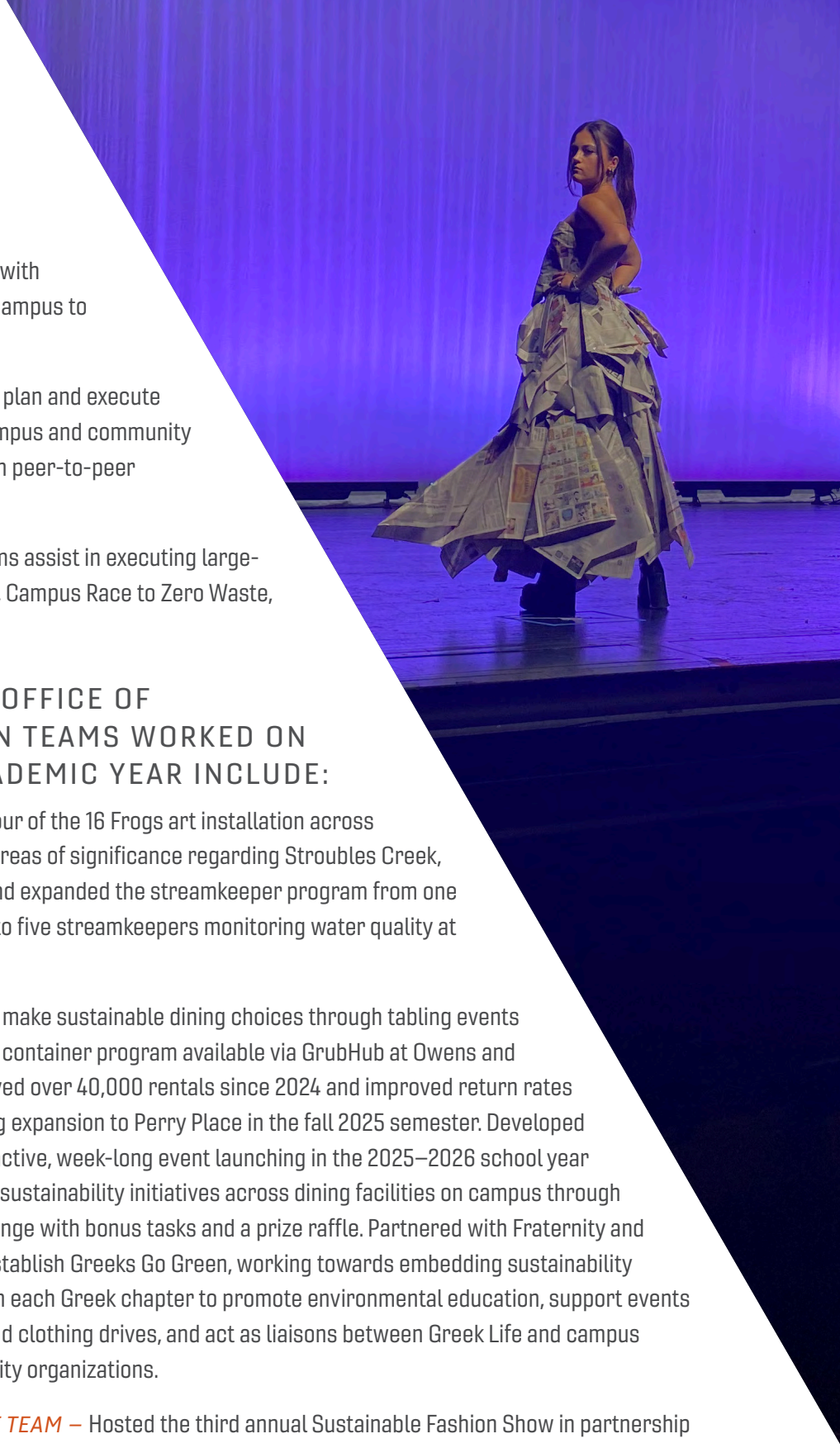
Green Lab Certification

The Green Lab Certification program is a self-assessment tool that empowers, encourages, and recognizes labs that are engaging in sustainable practices. The program provides faculty, staff, and students with the tools needed to go green in their labs. There are over 1,200 labs across Virginia Tech's Blacksburg campus, so there are many opportunities to improve the sustainability of these spaces.

As part of strengthening the sustainable culture in labs, the Sustainable Campus Culture, Engagement, and Sustainable Choices subcommittee worked to raise awareness about the International Laboratory Freezer Challenge. Carried out each year, the Freezer Challenge is a competition aimed at making labs' cold storage more energy efficient, improving sample accessibility, and saving energy costs.

Office of Sustainability Student Internship Program

The mission of the Office of Sustainability's 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 sustainability. The program encourages creativity and collaboration to solve some of the toughest sustainability challenges the world is facing today. There is a focus on experiential learning opportunities which blend real-world projects with practical, skills-based professional development workshops to prepare students for an ever-changing career in the sustainability field. The projects students complete, paired with professional development classes and other training, allow them to sharpen and expand their environmental and professional skill sets.



INTERN TEAMS WORK ON A VARIETY OF TASKS INCLUDING:

PARTNER PROJECTS – Teams partner with various departments and units across campus to complete technical projects.

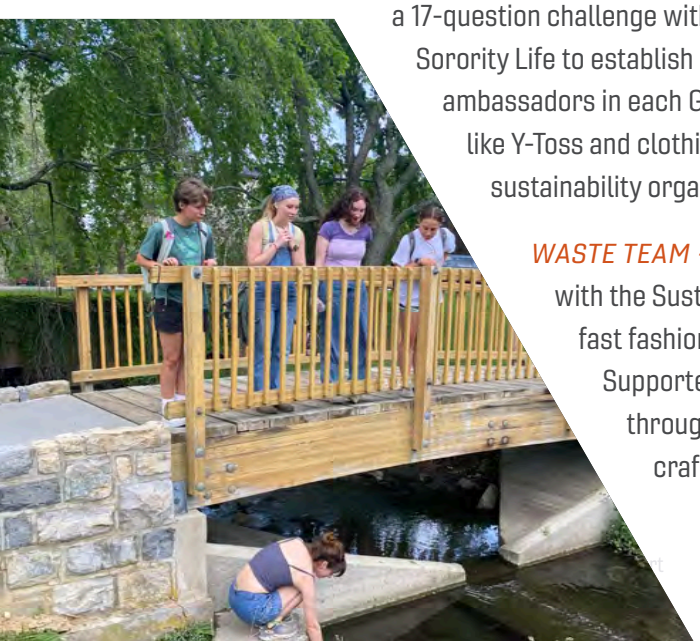
EDUCATION AND OUTREACH – Teams plan and execute outreach events in partnership with campus and community organizations to reach students through peer-to-peer educational opportunities.

UNIVERSITYWIDE CAMPAIGNS – Teams assist in executing large-scale campaigns including Earth Month, Campus Race to Zero Waste, the Freezer Challenge, and Giving Day.

THE PROJECTS THAT THE OFFICE OF SUSTAINABILITY'S INTERN TEAMS WORKED ON DURING THE 2024-25 ACADEMIC YEAR INCLUDE:

WATER TEAM – Developed a walking tour of the 16 Frogs art installation across Blacksburg and campus which denote areas of significance regarding Stroubles Creek, hosted multiple tours of the 16 Frogs, and expanded the streamkeeper program from one streamkeeper monitoring one location to five streamkeepers monitoring water quality at five locations across campus.

FOOD TEAM – Encouraged students to make sustainable dining choices through tabling events promoting ReusePass, a reusable to-go container program available via GrubHub at Owens and West End Dining Halls, which has achieved over 40,000 rentals since 2024 and improved return rates from under 5% to over 95%, prompting expansion to Perry Place in the fall 2025 semester. Developed a Sustainable Scavenger Hunt, an interactive, week-long event launching in the 2025–2026 school year to raise awareness of sustainability initiatives across dining facilities on campus through a 17-question challenge with bonus tasks and a prize raffle. Partnered with Fraternity and Sorority Life to establish Greeks Go Green, working towards embedding sustainability ambassadors in each Greek chapter to promote environmental education, support events like Y-Toss and clothing drives, and act as liaisons between Greek Life and campus sustainability organizations.



WASTE TEAM – Hosted the third annual Sustainable Fashion Show in partnership with the Sustainable Fashion Society to educate attendees on the impacts of the fast fashion industry and to showcase outfits that were thrifted or handmade. Supported Virginia Tech's participation in the Campus Race to Zero Waste through hosting educational workshops, tabling, and engaging recycled craft events on campus.

ENERGY TEAM – Completed a study of natural gas compared to electric in the context of our Dining Facilities through research, discussions with Dining Services staff, and tours of food preparation facilities. Supported Virginia Tech's participation in the Freezer Challenge through campaigning, tabling in lab buildings, contacting lab managers, and hosting information sessions about the program.

Earth Month

For over a decade, Virginia Tech has celebrated Earth Week. This year, the celebration was extended throughout April, resulting in Virginia Tech's first Earth Month observance. Hosted by the Environmental Coalition at Virginia Tech and the Office of Sustainability, with support from over 30 student organizations, university units, and community groups, Earth Month 2025 celebrated sustainability progress across campus. This year, over 50 events were held throughout the month. Some events of note include the Bee Campus habitat creation and pollinator maintenance service events, the Big Clean campus litter clean up, the third annual Sustainable Fashion Show, a waste audit, an Arbor Day observance, and many more.

The Big Clean

The Big Clean is an annual community service event inspired by Virginia Tech's tradition of The Big Event. Each spring, students, faculty, and local residents come together to clean up litter and beautify public spaces across Blacksburg, including areas like Downtown, Lane Stadium, Center Street, and the Duck Pond. In 2025, 82 volunteers signed up to clean 124.1 acres, collecting 150 bags of trash across the project sites.

New River Environmental Coalition

The New River Environmental Coalition is a group of students, employees, and community members committed to promoting sustainability through mutually beneficial partnerships that create a collective impact in the New River Valley (NRV). The mission is rooted in collaboration, shared resources, and community building across campus borders. With so many student organizations, individuals, and community groups dedicated to sustainability, efforts can oftentimes feel disconnected or duplicated. NREC provides a space for these groups to engage, exchange ideas, and support one another. By fostering connection and recognizing the unique contributions of each group, they create space for environmental efforts to thrive together and strengthen their collective impact.

NREC emerged from the recognition that environmental efforts on campus and in the broader community were often siloed. NREC's goal is to build an inclusive, collaborative space that encourages open dialogue, long-term partnerships, and creative problem-solving. In the fall semester, NREC held separate student and community meetings to assess needs, explore interest, and begin building partnerships. During the spring semester, a joint campus-community meeting and a summit were successfully held, setting the foundation for a coalition model designed for future replication.

Now with 72 members, NREC continues to grow as a space rooted in shared purpose and relationship-building. Looking ahead, the NREC planning team plans to expand into Radford and neighboring communities, increase membership, and supporting engagement across the region.

Streamkeepers Program

The Streamkeepers program is a student-led initiative, managed by the Office of Sustainability's student interns, that focuses on monitoring and improving the water quality of Stroubles Creek as it flows through campus and the surrounding Blacksburg area.

Streamkeepers are unpaid student volunteers who conduct regular water sampling, gaining hands-on experience in environmental monitoring. This coming year, the program will expand from one to five testing sites: Surge Space, Davidson Hall, Smithfield Road, West Campus Drive, and along the Huckleberry Trail. Long-term data collection will be shared with the Climate Action, Sustainability, and Energy Committee's Water subcommittee and preserved for ongoing analysis, helping to detect and address water quality issues early and promote the long-term health of Stroubles Creek.

Game Day Green Team

The Game Day Green Team promotes tailgate recycling during home football games by having volunteers walk around the high impact parking lots surrounding Lane Stadium educating tailgaters on what can and cannot be recycled. The Game Day Green Team is led by students who manage supplies and recruit volunteers.

Green Graduates

The Green Graduates of Virginia Tech program asks graduating students to take a personal pledge to think about the environmental impacts of their jobs, travel, and other adventures after leaving the university. By pledging, students are committing to fostering sustainable behaviors both in their own lives and in the lives of their friends, family, and coworkers. To honor the students who take the pledge, the Office of Sustainability awards each student a free green cord to wear at graduation. All undergraduate and graduate students are eligible to participate. The Virginia Tech Green Graduates program has been running for ten years straight now. For the 2024-25 academic year, 308 graduating students participated in the pledge.

Homefield Farm

Homefield Farm is a partnership between Dining Services, The College of Agriculture and Life Sciences, and the School of Plant and Environmental Sciences (SPES). Homefield is a 12-acre organic certified farm that grows vegetables, fruits, and herbs for Virginia Tech Dining Services. Historically, the farm has produced roughly 45,000 pounds of produce annually. This partnership serves as a site for experiential learning, research, service, and community outreach. Homefield Farm products support sustainable events on campus, several dishes in our dining centers, farm stands throughout the fall semester, and can also be found in the Xpress Lane Market seasonally.

This past fall, the farm onboarded a new manager. This position oversees the day-to-day activities at Homefield. They support classes and volunteers, special events and dining center produce orders, among other responsibilities. The addition of the Homefield Manager has allowed Dining Services to fill all full-time open positions at the farm.

In the fall of 2024, Homefield hosted four farm stands outside of Dietrick Hall and Turner Place at Lavery Hall. Farm stand interest continues to increase. There was a significant jump in farm stand patrons and the stand more than doubled items sold in comparison to past years. Some of the most popular items come from partnerships with the School of Plant and Environmental Sciences – flowers and pumpkins.

This spring, Homefield Farm launched a new collaboration with the Department of Entomology by adding two bee hives to the farm, thanks to a partnership with James Wilson, extension apiculturist at Virginia Tech. Located beside a vibrant flower garden, the hives will help boost pollinator activity across the farm, supporting crop health and biodiversity. This initiative not only strengthens cross-campus collaboration but also enhances experiential learning opportunities for students, offering hands-on exposure to sustainable agriculture and pollinator ecology. The addition of the hives invites more students to engage with the farm and deepens Dining Services' commitment to integrated educational farming practices.

13. Climate Action Commitment Implementation and Engagement

"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."

Climate Action, Sustainability, and Energy (CASE) Committee Accomplishments and Progress

The ten subcommittees of the CASE Committee continued to aid in implementation efforts of Virginia Tech's 2020 Climate Action Commitment.

The CASE Committee welcomed 13 new and 19 returning members for the 2024-2025 academic year.

Subcommittee conveners provided updates in the fall and again in the spring encompassing:

+ Sustainable Campus Culture, Engagement, and Sustainable Choices
+ Carbon Neutral Commuting and Carbon Neutral Fleet
+ Zero Waste
+ Agriculture, Forestry, and Land Use Operations
+ Climate Action Living Laboratory (CALL)
+ GHG Inventory and Carbon Offsets/Management
+ Virginia Tech-Blacksburg Sustainability Collaboration (notes used from Sustainable Blacksburg)
+ Climate Justice
+ Energy
+ Water

The following topics were presented to the committee at meetings throughout the course of the academic year:

+ Virginia Tech's Green RFP Updates and Vote
+ Tree Campus in Higher Education
+ Subcommittees overview
+ Sustainable Labs Progress and Green Lab Certification
+ Revitalized Green Office Certification
+ Bee Campus USA
+ Sustainability Annual Report Overview
+ STARS 3.0
+ Sustainability Partnership Opportunities with Residential Well-Being
+ Agrivoltaics Update
+ The New Transit Center
+ Virginia Tech Utility Master Plan Overview and Update
+ Energy Savings Performance Contracting Overview and Update
+ Earth Month Summary (pre-Earth Month)
+ Earth Month Overview (post-Earth Month)
+ Updates on University Sustainability Efforts
+ Fall semester and spring semester subcommittee updates

Additionally, during the announcement portions of meetings the following Virginia Tech and community programs/initiatives were highlighted and promoted:

+ Game Day Green Team
+ Virginia Tech's Bee Campus USA
+ Green RFP Program
+ The International Laboratory Freezer Challenge
+ Sustainable Dining Fall Harvest Festival
+ Sustainable Blacksburg Annual Listening Session
+ Virginia Tech's Giving Day and Sustainability Fund
+ New River Environmental Coalition Campus and Community Meeting
+ Office of Sustainability Internship Program
+ Streamkeepers Program
+ Careers in Energy Conference
+ Earth Month
+ Green Graduates
+ Y-TOSS

14. Innovative Financing

"Develop innovative budgeting and financing mechanisms to generate funding and staffing to achieve Climate Action Commitment goals."

Giving Day

Giving Day was held February 19-20, 2025, and served a special opportunity for Hokies to unite and give back to their favorite departments, programs, student organizations, and teams. The Office of Sustainability was able to

promote the Facilities Sustainability fund during this time. This was the fourth year of fund raising for sustainability efforts through Giving Day. These funds go towards projects on campus that support Climate Action Commitment implementation efforts.

Green RFP

Student engagement and leadership are important aspects in advancing sustainability at Virginia Tech. The Green Request for Proposal (RFP) Program gives students the opportunity each year to submit a proposal for a sustainable idea that they would like to see implemented on the university's Blacksburg campus. For proposals to be considered for approval, they must support one or multiple goals of the Climate Action Commitment. Since its initiation in academic year 2010-11, the Green RFP program has provided $2.33 million in funding support for 142 student sustainability proposals. During academic year 2024-25, seven proposals were approved for a total of $148,600.

15. Fossil Fuel Free by 2050

"Develop pathways after 2030 to eliminate fossil fuels and carbon offsetsby 2050."

Utilities Framework

Virginia Tech is laying the groundwork to be fossil fuel free by 2050. The campus master plan's utilities framework – previously called the utilities master plan – provides a comprehensive road map to align campuswide utility systems with the strategies of the Campus Master Plan and the sustainability goals of the Climate Action Commitment. The university operates and maintains numerous utility systems that will all be managed through this detailed plan. The Division of Facilities began this effort for the university's utilities in 2023. The first stage of developing the utilities framework involved taking an inventory of all current utilities infrastructure and noting its condition. Once that was finished, the planning sessions expanded to include three meetings in the fall that were focused on addressing the CAC (decarbonization, air emissions, and measures of success). Consultant group Wiley and Wilson conducted research and presented multiple options for the utilities framework to support achieving CAC goals, such as carbon neutrality and 100 percent renewable electricity by 2030. Furthermore, alternative technologies were explored, such as geoexchange, low temperature hot water (LTHW), solar power, and several others. The final CAC-focused session challenged Virginia Tech to think deeply about the future and opportunities to strategically position our utilities infrastructure for success in a low carbon world.

CONCLUSION

Virginia Tech demonstrates a continued strong commitment to tackling the challenges of climate change through its efforts to implement the Climate Action Commitment. Progress made throughout the past academic year highlight substantial advancements towards meeting the goals laid out in the commitment. The overarching goal of carbon neutrality by 2030 is complex and will require the entire university community to be on board with making the necessary improvements happen.

Sustainability at Virginia Tech extends beyond campus life and is a partnership between students, faculty, staff, and the local community. All Hokies can be climate action champions, contributing to making Blacksburg and the Commonwealth a more sustainable place to live, work, and learn.

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

ACKNOWLEDGEMENTS

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AND WITH SPECIAL THANKS TO

The Virginia Tech and Blacksburg communities

APPENDIX

2020 Climate Action Commitment
Calendar Year 2024 Recycle Rate Report

VIRGINIA TECH™

2020 VIRGINIA TECH

Climate Action Commitment Working Group Final Report

EXECUTIVE SUMMARY AND OVERVIEW

November 2020

EXECUTIVE SUMMARY

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.

This summary report and the much longer full 2020 Virginia Tech Climate Action Commitment Working Group Report, Subcommittee Reports, and associated appendices provide a clear road map for not only how Virginia Tech can do its part to address climate change, but also become a leader in taking bold action to combat this worldwide crisis.

Throughout 2020, a global pandemic brought unprecedented hardship and suffering, particularly for the most vulnerable among us. In this public health crisis, citizens are learning an important lesson: when experts are near unanimous in ringing the alarm bells on looming crises, society must take decisive action.

This unique time is engendering a tremendous spirit of innovation and collaboration that is highly applicable to the Climate Action Commitment revision process.

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. In announcing the creation of the Working Group, President Sands stated that "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 Virginia Tech Climate Action Commitment, compare our experience to peer institutions, and develop a new commitment. Virginia Tech, like other universities, is facing both short-term fiscal challenges and long-term uncertainties in these challenging times. Nonetheless, the university remains committed to taking bold action to do its part to address the climate emergency.

Please read on to learn more about the 2020 Virginia Tech Climate Action Commitment. The full Working Group Report and other pertinent documents and information may be found at svpoa.vt.edu/index/VTCACRevision. Chapter references that follow are applicable to the full report.

WORKING GROUP PROCESS

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 established 12 subcommittees including 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 these Convening sessions, the Working Group and its subcommittees also developed ten creative videos that describe the Climate Action Commitment proposals. Learn more about campus community engagement in the process and access videos at svpoa.vt.edu/index/VTCACRevision.

The Working Group's efforts have 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 have also 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 *Ut Prosim.*

The recommended Climate Action Commitment is 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.

PROGRESS IMPLEMENTING 2009 VIRGINIA TECH CLIMATE ACTION COMMITMENT

Virginia Tech has made considerable progress in implementing its 2009/2013 Climate Action Commitment (2009 Virginia Tech Climate Action Commitment) over the past decade. The 2009 Virginia Tech Climate Action Commitment and Sustainability Plan was a cutting-edge effort for its time, but a decade later it fails to prescribe what climate scientists recognize as necessary actions and also falls short of many peer universities' recent initiatives.

In many respects, however, Virginia Tech has been forging ahead beyond the 2009/2013 Climate Action Commitment. 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 (7 times), Best Workplaces for Commuters (every year, gold in 2019-20), Bicycle Friendly Campus (every year, silver level 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 targeted trajectory. It resulted from investments in energy efficiency in existing and new buildings, and most importantly, from replacing coal with natural gas in the steam plant, which was enabled by a new gas pipeline. Virginia Tech now has 36 LEED-certified buildings constructed or in process, amounting to 30 percent of campus space, and in 2015-20 the university 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, including dual use trails, bike share, ride share, and car share programs. The university has had record ridership on its partner Blacksburg Transit and innovative plans for campus mobility. Virginia Tech has a functional, although fragmented, waste management program with an 80 percent waste diversion rate (waste diverted from landfill) and 40 percent recycling rate, although shy of the 50 percent by 2020 goal of the 2013 Virginia Tech Climate Action Commitment. In April 2020, the Procurement Department unveiled a Sustainable Procurement Policy; and in May, the Facilities Department produced new Design and Construction Building Standards, both reflecting the ideals of the Virginia Tech Climate Action Commitment.

The university has an enviable array of sustainability-related academic programs, majors, coursework, and research, in green engineering, natural resources, agriculture, power and energy systems, environmental policy, and smart and sustainable cities. 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 energized the university community to move forward on climate action, both in 2008 and in 2019.

The Division of Campus Planning, Infrastructure, and Facilities has embraced sustainability and climate action as part of its mission, and the Office of Sustainability is second to none, even with limited staff. The university has the highly unique and valuable Virginia Tech Electric Service (VTES), a university-owned electric energy utility system, which serves not only the campus, but also 6,000 Town of Blacksburg customers.

In other areas, however, the university is falling behind. Although the 2009/2013 Virginia Tech Climate Action Commitment was a leading effort for its time, from the perspective of 2020, it is limited in both scope and ambition. It did not include several sources of campus GHG, such as agriculture, business travel, and leased building space, the latter amounting to 13 percent of operational square footage. It did not mention renewable energy nor the human cost of climate change. Furthermore, its overall goal of an 80 percent reduction in GHG from 1990 levels by 2050, while a typical goal for its time, is not aggressive enough compared to the contemporary needs for climate action and the national movement of our peer institutions.

2020 VIRGINIA TECH CLIMATE ACTION COMMITMENT

The major product of the Working Group is a new Climate Action Commitment. It aims to be bold and visionary, but also comprehensive and pragmatic for a leading academic institution. Goals 1-9 target physical means to achieve carbon neutrality by 2030, Goals 10-14 address education, culture, social equity, and engaged implementation, and Goal 15 sets a longer-range goal of a fossil-fuel-fee campus. The Working Group also developed a set of potential pathways to achieve each goal. The table to the right lists the goals, and they are presented with summary pathways. More detailed pathways are presented in chapter 2.

Vision of the 2020 Virginia Tech 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 2020 Virginia Tech Climate Action Commitment

The mission of the 2020 Virginia Tech Climate Action Commitment is to achieve carbon neutrality by changing the university's 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.

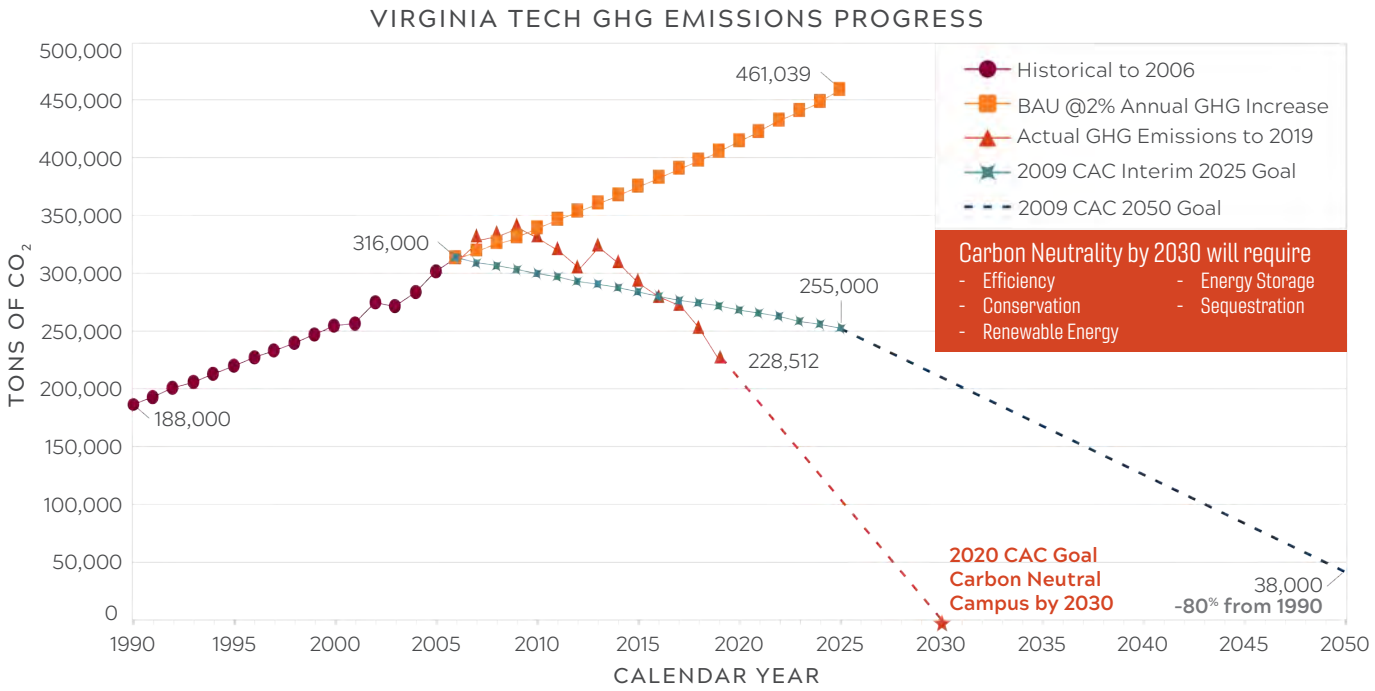
2020 VIRGINIA TECH CLIMATE ACTION COMMITMENT GOALS

1. Achieve a carbon neutral Virginia Tech campus by 2030.
2. Achieve 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 funding and staffing to achieve Climate Action Commitment goals.
15. Develop Pathways after 2030 to eliminate fossil fuels and carbon offsets by 2050.

2020 Virginia Tech Climate Action Commitment:

SUMMARY OF GOALS AND PATHWAYS

1. Carbon Neutral Virginia Tech Campus by 2030.



Carbon neutral equals net-zero emissions of CO_2, CH_4, and NO_2 from Virginia Tech operations at Blacksburg campus based on the geographic and GHG scope of the 2020 Climate Action Commitment.

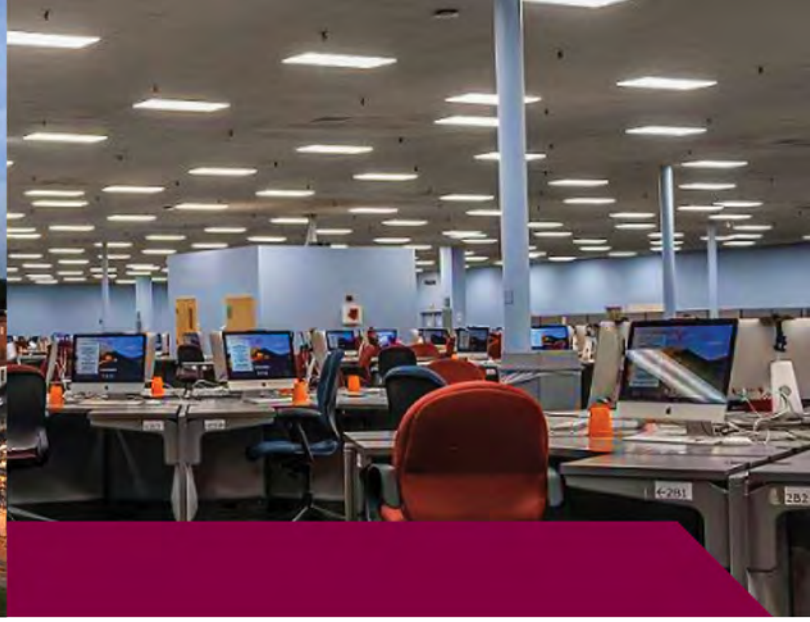
POTENTIAL PATHWAYS:

- 100 percent renewable electricity by 2030 can reduce emissions by 50 percent below 2019 levels.
- Total conversion from coal to natural gas in steam plant by 2025 can reduce GHG by 10 percent below 2019.
- Reduction of energy use in existing and new buildings can result in further emissions reductions of 10 percent, despite campus growth.
- Reduction of GHG from waste/recycling, transportation, and agriculture, forestry, and land use described below can reduce emissions by 10 percent.
- In 2030, remaining emissions can be negated by carbon offsets.

2. 100 Percent Renewable Electricity by 2030.

POTENTIAL PATHWAYS:

- 2020: achieve 30 percent renewable electricity via purchase of 20 percent renewable energy certificates (RECs) from APCO + APCO 10 percent renewable portfolio.
- 2020-2030: Achieve 100 percent renewable electricity by 2030 via combination of Virginia Tech rooftops/lands solar (15 MW), 3rd party owned PPA, and APCO owned SWVA PPA solar capacity (130 MW+15 MW=145 MW) to serve campus (95 MW) and town customers (50 MW) for 60 percent of needs plus 30 percent APCO renewable portfolio and 10 percent RECs to cover steam plant cogeneration.
- Integrate solar development into the Climate Action Living Laboratory (CALL) of academic instruction and research, including dual-use solar-farm production agrivoltaics; a 10-MW storage testbed/showcase project for smart micro-grid reliability and resilience research through Virginia Tech Electric Service and the Virginia Tech Power and Energy Center; and other instruction/research initiatives.
- As with all components of this Climate Action Commitment, full lifecycle analysis of renewables procurement should include the environmental and social justice costs and benefits of procured systems.
- The siting of renewable energy systems should employ best practices in public engagement to identify the most appropriate locations.



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.

POTENTIAL PATHWAYS:

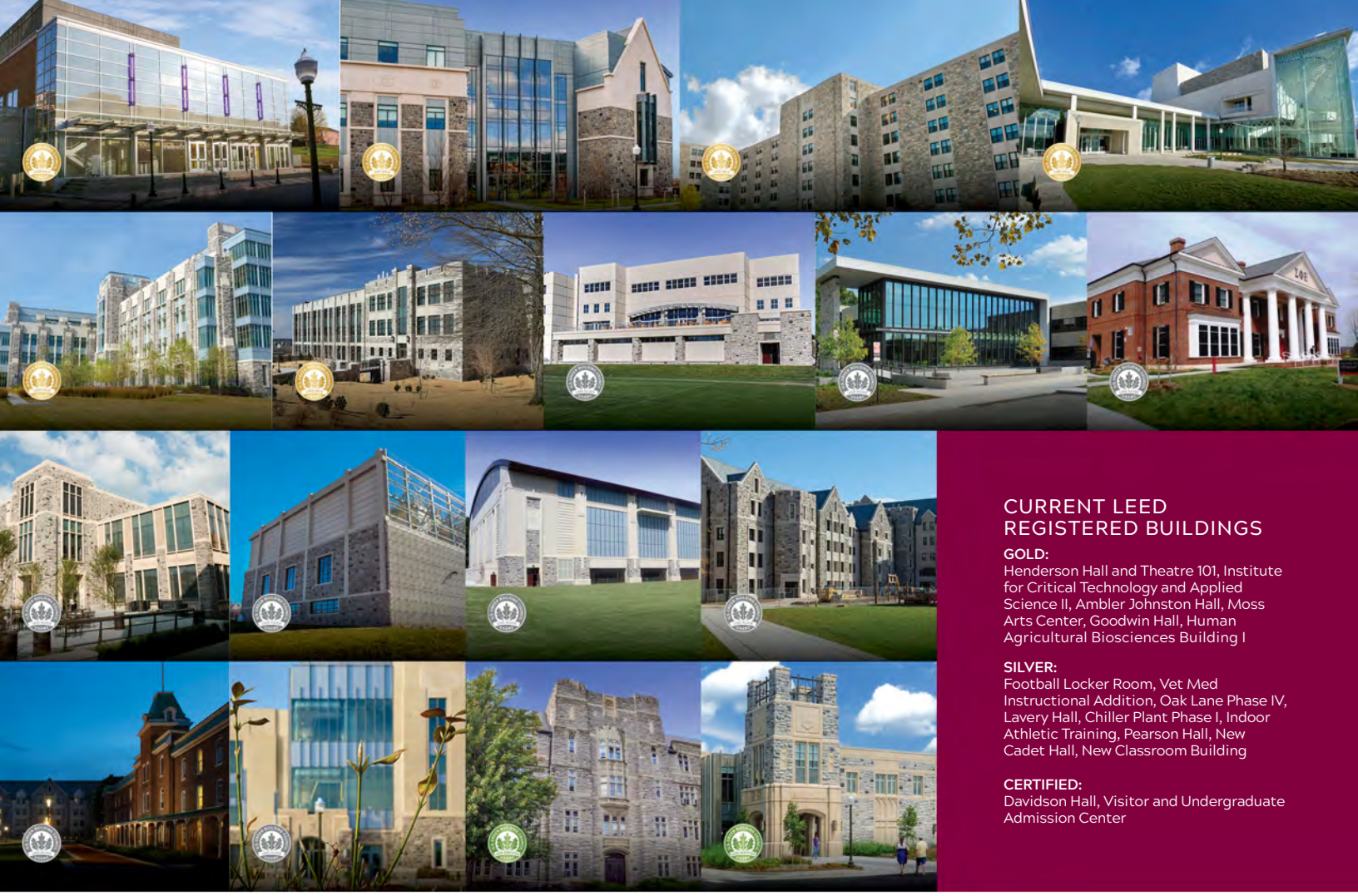
- Addition of gas boiler #12 provides natural gas thermal capacity for all steam plant demand.
- VT's new natural gas service contract signed in summer 2020 and effective until 2025, provides favorable price and reliability terms and prospects for renewable gas.
- For reliability and resilience, a plan is needed for backup fuel (such as liquefied natural gas (LNG), biochar, or other fuel) when natural gas is unavailable, and boiler redundancy (so-called "n+1") in case of a boiler outage at a critical time.
- Improve chiller efficiency: By 2023 the Chiller Plant Phase II capital project will reduce central chiller energy usage by 20% from 2020; future campus growth needs for chilled water will be met from central plants where possible.
- Ten-year 2021-30 Energy Management Plan will improve efficiency of stand-alone chilled water plants
- Establish an online Climate Action Living Laboratory (CALL) Energy Dashboard for faculty, staff, and students to access and analyze campus facilities energy use data for instruction and research.
- After 2025, plan for transition to renewable energy in heating systems, considering renewable gas, geothermal and ground source heat pump systems, and other non-fossil-fuel options for heating existing and new districts of campus.
- Beginning with the CAC 2025 revision, develop a plan for full transition to renewable energy for campus heating systems. To promote zero emissions energy options in the plan, refine GHG inventory estimates of methane leakage from VT natural gas sources and include those estimates of methane leakage in the carbon neutral goal for 2035.

4. Reduce Building Energy Consumption to Enable Carbon Neutrality by 2030.

- By the end of 2022, reduce electricity consumption (kWh) by 10 percent and electricity intensity (kWh/gsf) by 20 percent below 2006 levels.
- By 2030, employ energy management retrofits to reduce total energy consumption in all buildings by 10 percent and energy use intensity (Btu+kWh/gsf) by 20 percent below 2020 levels.

POTENTIAL PATHWAYS:

- Implement an aggressive 2021-30 ten-year energy management plan updated annually to reduce total energy consumption in all buildings including auxiliaries by 10 percent.
- For leased buildings owned by the Virginia Tech Foundation, work with the Foundation to develop financial arrangements to improve efficiency and reduce emissions.
- By 2021, develop a campus-wide Climate Action Living Laboratory Green Lab program based on a pilot test-bed Green Lab to reduce energy, emissions, and materials in our most energy-intensive facilities.
- Reduce building energy and GHG emissions by smart operations, such as demand response, digital controls, thermostat settings, occupant behavior, and innovative space scheduling, especially in summer.
- Achieving these goals will require sufficient staffing in energy management.



CURRENT LEED REGISTERED BUILDINGS

GOLD:
Henderson Hall and Theatre 101, Institute for Critical Technology and Applied Science II, Ambler Johnston Hall, Moss Arts Center, Goodwin Hall, Human Agricultural Biosciences Building I

SILVER:
Football Locker Room, Vet Med Instructional Addition, Oak Lane Phase IV, Lavery Hall, Chiller Plant Phase I, Indoor Athletic Training, Pearson Hall, New Cadet Hall, New Classroom Building

CERTIFIED:
Davidson Hall, Visitor and Undergraduate Admission Center

5. Operations of New Buildings Initiated by 2030 will be Carbon Neutral.

- New building efficiency will conform to latest adopted LEED-Silver standards and ASHRAE 90.1 energy performance standards + 10 percent.
- By 2022, reduce total energy use intensity (EUI) in newly initiated buildings by 20 percent compared to 2020 existing buildings.
- By 2026, build a signature zero-net-energy (ZNE) building on campus as a showcase and learning model for the Climate Action Living Laboratory.
- By 2028, newly initiated buildings' efficiency improvements will reduce total energy use intensity (EUI) in new buildings by 40 percent compared to 2020 existing buildings.

POTENTIAL PATHWAYS:

- In 2021, identify candidate new buildings for a showcase zero-net-energy (ZNE) building and begin fundraising to attract donors to help fund the project to be completed by 2026.
- Electricity currently contributes 50 percent of total GHG emissions. One hundred percent renewable electricity by 2030 will reduce building CO_2 emissions by more than 50 percent.
- By 2030, all newly initiated building design will have carbon neutral operations through 100 percent renewable electricity, improved energy efficiency, and carbon offsets.
- Post-occupancy evaluation (POE) should become standard practice to fine tune building operations and engage occupants to better serve users and reduce emissions.
- New buildings offer opportunities for campus Climate Action Living Laboratory research and instruction by faculty and students through field testing and use of emerging technologies, monitoring energy use, air quality, and occupant perceptions, and other projects.
- Achieving these goals will require sufficient engineering and design staffing.

6. Agricultural, Forestry, and Land Use Operations Go Carbon Neutral by 2030.

POTENTIAL PATHWAYS:

- Develop the University Compost Facility at Kentland to provide benefits to campus organic waste management, help reduce animal waste GHG emissions, support soil health, and reduce need for new land for future land application of animal wastes.
- Adopt Campus Tree Policy to increase canopy cover from 16-to-25 percent and manage Virginia Tech trees, forests and woodlands to increase carbon sequestration and provide additional environmental benefits.
- Reduce agricultural and forestry net GHG emissions through more efficient operations, reduced animal enteric fermentation emissions, improved energy and fuel efficiency, possibly an anaerobic digester to produce usable methane, and other means.
- Use Virginia Tech agricultural lands to develop solar farms toward renewables goal, including co-use solar and farmland agrivoltaics for Climate Action Living Laboratory instruction and research.
- In 2030, offset any remaining net GHG emissions from agricultural/forestry operations with solar production from Virginia Tech agricultural land and/or by purchasing carbon offsets.

7. Virginia Tech to become a Zero-Waste Campus by 2030.

POTENTIAL PATHWAYS:

- Hire a zero-waste consultant to conduct a waste audit study and plan to evaluate organization, procedures, and staffing to enhance campus waste management.
- Based on consultant recommendations, consider hiring a campus waste manager.
- Engage personnel involved in campus waste management on a Waste/Recycling Council to help streamline operations and reduce redundancies.
- Develop University Compost Facility at Kentland to process campus organic waste from dining halls and athletics, veterinary and agriculture animal waste, yard trimmings, wood waste, non-recyclable soiled paper, and other compostables.
- Engage faculty, students, and staff in greater use of recycling/compost behavior using social marketing and media, incentives, and innovative approaches to advance Circular Economy and Pollution Prevention (P2) principles as part of the Climate Action Living Laboratory.
- Evaluate and improve as needed the management of specialty wastes, such as e-waste, laboratory waste, construction debris, and wastes from major sporting and other events.

8. Establish the Sustainability Procurement Policy and Procedures by 2022.

POTENTIAL PATHWAY:

- On a pilot basis, adopt, implement, and evaluate the 2020 Sustainable Procurement Policy.
- In 2022, the Energy & Sustainability Committee will assess the pilot project and work with the Procurement Department to formulate the Sustainability Procurement Policy v.2.

9. Reduce Single-Occupancy Vehicle (SOV) Commuting to Campus by 20 percent by 2025 and Reduce Transportation Related GHG Emissions by 40 percent by 2030.

POTENTIAL PATHWAYS:

- Promote walking/biking/transit as the preferred means of commuting to campus: Use parking policies, alternative transportation programs, campus mobility planning in collaboration with Town of Blacksburg, and encourage Blacksburg Transit (BT) programs to improve the safety and convenience of and promote walking, biking, and transit.
- Promote sustainable mobility choices through marketing, including social media, parking permit literature, gaming, university promotion literature and website, and student orientation.
- Promote non-commuting work and learning opportunities such as telecommuting, innovative online instruction, Internet conferencing, and other means.
- Improve infrastructure and traffic management to improve mobility choices and safety by reducing speed limits, improved bike and pedestrian path lighting, limiting/restricting vehicles in core campus, implementing current transportation plans, and coordinating with Town of Blacksburg plans.
- Improve vehicle efficiency and promote low-carbon emissions vehicles through Motor Pool purchases and development of electric vehicle charging stations on campus.
- Promote social equity in mobility and parking policies by developing effective and efficient commuting options for lower wage employees who cannot afford to live in Blacksburg, sliding-scale parking fees based on salary/wage, and collaboration with the Town of Blacksburg to provide affordable workforce housing proximate to campus.
- Reduce and negate business travel GHG emissions with carbon offsets.
- Establish an alternative mobility subcommittee of the Transportation and Parking Committee to recommend strategies to increase the non-SOV mode share on campus.

10. Integrate the Climate Action Commitment into Virginia Tech's Educational Mission through the Climate Action Living Laboratory (CALL) Beginning in 2021.

POTENTIAL PATHWAYS:

- Recognize the excellent opportunities for student learning, faculty and student technical research, and staff development. Benefits include learning from and innovating creative solutions in-house for Virginia Tech's climate initiatives and better engaging the entire university both in Blacksburg and other Virginia Tech locations in our quest for sustainable and just climate action.
- Establish the Climate Action Living Laboratory (CALL) in the new University Office for Climate Action and Sustainability (OCAS) to enhance offerings and build bridges between facilities and academic departments, facilitating and supporting opportunities.

- Alter norms and incentives to overcome traditional barriers and nurture cooperation between academic units (research and teaching) and operations units such as Division of Campus Planning, Infrastructure, and Facilities and auxiliary units including Dining Services, Housing and Residence Life, and Athletics. Greater collaboration between university units will help implement the Climate Action Commitment and integrate physical plant climate action with academics and campus life.
- Integrate Climate Action Living Laboratory (CALL) initiatives in other goals/pathways for renewables (2), energy materials, devices and systems (3), buildings (4, 5), agriculture (6), waste (7), transportation (9), climate justice (11), sustainable behaviors (12), and community engagement (13).
- Engage the university's land grant extension and outreach programs to reflect the principles of the Climate Action Commitment and help implement them throughout the Commonwealth.
- Integrate the physical infrastructure elements of the Climate Action Commitment into the fabric of the university's educational and research programs to expand funding opportunities for campus innovation from state and federal sources as well as foundations.

11. Establish Climate Justice as a Core Value of the Climate Action Commitment.

POTENTIAL PATHWAYS:

- Encourage an accelerated transition to carbon-neutral status as a climate-justice imperative.
- Ensure that the social impacts of Virginia Tech's climate mitigation choices (e.g. energy, land use, and waste) are identified and addressed to the greatest extent possible.
- Establish a Climate Justice Subcommittee of the revised Climate Action, Sustainability, and Energy (CASE) Committee by 2021 with representation from students, faculty, and community members from frontline groups.
- Ensure that Virginia Tech climate action implementation plans recognize and assist vulnerable or frontline groups adversely affected by those plans, including low-wage Virginia Tech employees, tuition-paying students, VTES town ratepayers, historically marginalized people of color and Indigenous communities, coalfield communities, and others.
- Establish education, research, and outreach programs to assist vulnerable and historically marginalized groups mitigate and adapt to climate change and thrive in the new energy economy. These efforts should specifically target Virginia Tribes, African Americans in the New River Valley, coalfield communities in southwest Virginia, and coastal Virginia communities threatened by climate-related hazards.

12. Diminish Barriers to Sustainable Behaviors through Institutional Change, Education, and Social Marketing.

POTENTIAL PATHWAYS:

- Implement infrastructural changes–from waste management to transportation to building operation–to make sustainable choices easier.
  - Identify structural, social and institutional barriers to sustainable behaviors.
  - Develop educational programs to foster pro-environmental behavior change.
- Design and implement choice architecture or "nudges" to promote sustainable behavior, while allowing for individual choice, using social media, gaming, and other means.
- Develop a shared toolkit of best practices in social marketing, rooted in behavioral sciences, for campus groups initiating sustainability initiatives.
- Nurture cross-campus partnerships to coordinate climate action and enhance sustainability initiatives.

13. Implement the Virginia Tech Climate Action Commitment.

... at a high level of university administration and governance;

... by integrating Climate Action goals for facilities, education, and campus culture; and

... with ongoing stakeholder engagement for evaluation of goals and progress.

POTENTIAL PATHWAYS:

- **Governance:** By fall 2021, restructure the university Energy and Sustainability Committee (E&SC), renaming it the Climate Action, Sustainability, Energy (CASE) Committee, and revising its charge, membership, and reporting, to oversee the implementation and review of the Climate Action Commitment goals and progress involving student, faculty, and staff stakeholders.
- **Implementation/operations:** Appoint a new university Chief Climate Action and Sustainability Officer (CCASO) to direct a reconstituted University Office of Climate Action and Sustainability (OCAS) to oversee Climate Action Commitment implementation and other campus sustainability initiatives. The CCASO would jointly report to the Senior Vice President and Chief Business Officer and to the Executive Vice President and Provost. The CCASO would chair the CASE Committee. The Facilities Division would, in parallel, appoint a director of strategic success to oversee a range of strategic Facilities issues including climate action and sustainability.
- **Learning:** Establish the Climate Action Living Laboratory (CALL) in the new OCAS to enhance offerings and build bridges between facilities and academic departments, facilitating and supporting opportunities (Goal 10).
- **Duties of Operations and Governance units:**
  - Collect data relevant to the Climate Action Commitment including GHG inventory and prepare an Annual Report of Climate Action Commitment progress each fall semester for the previous fiscal year.
  - Establish mechanisms to engage and educate the Virginia Tech community on the Climate Action Commitment and climate action.
  - Establish ad hoc committees to develop instructional, research and outreach programming for the Climate Action Living Laboratory (CALL).
  - Evaluate Climate Action Commitment goals according to best practices in light of new information and standards and direct update of the Climate Action Commitment on a five-year cycle.
  - Broaden the geographic scope of the Climate Action Commitment to all Virginia Tech properties in future iterations to include the entire university.
  - Advocate for allocation and prioritization of resources to support the Climate Action Commitment.
- **Annual review:** Conduct an in-depth annual review of the Climate Action Commitment goals and implementation, progress that involves student, staff, faculty, and community stakeholders. The results of this review will be shared publicly in an accessible and easy-to-read format.

14. Develop Innovative Budgeting and Financing Mechanisms to Generate Funding and Staffing to Achieve Climate Action Commitment Goals.

POTENTIAL PATHWAYS:

- Strategically invest university E&G and auxiliary funds to implement the 10-year Energy Management Plan at a level of $5 million/year in energy efficiency projects with a cumulative 8-year financial payback or 12 percent return on investment.
- Major investment is needed to implement the pathways for renewable electricity both on Virginia Tech buildings/lands and in the Southwest Virginia region, including the following options:
  - Virginia Tech-owned and developed projects on Virginia Tech buildings/land and
  - Utility or third party owned and developed projects on Virginia Tech buildings/land and in SWVA with Virginia Tech power purchase agreement (PPA).

The first option requires major Virginia Tech capital investment but provides greater long-term return and control, while the second requires no Virginia Tech capital but provides less long-term financial return. A combination of the two options may be used to meet the Climate Action Commitment renewables goal.

- As a unique power utility, VTES has opportunities for investment in renewable energy serving both campus and its town customers.
- The Virginia Tech Foundation helps the university achieve its goals and may be a valuable partner in implementing the Climate Action Commitment:

- As owner of most of the leased academic space off campus, the Foundation has already agreed to provide funding for an energy efficiency retrofit pilot project in Corporate Research Center buildings on a revenue neutral basis.
- Campus solar development provides another opportunity for Foundation investment with appropriate return on that investment.

- Additional sources of funds to implement the Climate Action Commitment include, federal and state grants, research funding in connection with the Living Laboratory, advancement donations, philanthropic organizations and foundations, and low interest revenue bonds by VTES and auxiliaries.
- In addition to project funding, implementation of the Climate Action Commitment will require upgrading the staff to rise to the needs of the commitment, especially in energy management, energy and utility systems, building analysis and design, waste management, university compost facility operation, and campus sustainability.

15. Develop Pathways After 2030 to Eliminate Fossil Fuels and Offsets by 2050.

POTENTIAL PATHWAYS:

- A long-term Utilities Master Plan should fully incorporate the goals of this Climate Action Commitment
- It is difficult to anticipate how technology, the economy, and public policy will evolve in the next 10-30 years, necessitating revisions along the way:
  - 2025: 5-year Climate Action Commitment revision review explore options for 2030-2040 timeframe.
  - 2030: 5-year Climate Action Commitment revision review explore options for 2040-2050 timeframe.
- Beginning with the CAC 2025 revision, develop a plan for full transition to renewable energy for campus heating systems. To promote zero emissions energy options in the plan, refine GHG inventory estimates of methane leakage from VT natural gas sources and include those estimates of methane leakage in the carbon neutral goal for 2035.
- Eliminating offsets and fossil fuels would require significant changes in Virginia Tech's physical plant. The university is dependent on natural gas in the steam plant and eliminating natural gas will require replacement by a non-carbon fuel (e.g. biogas, hydrogen, biochar) or a new heating system based not on steam but on hot water perhaps generated by renewable electricity and geothermal ground-source heat pump systems. Some universities are moving in that direction, and Virginia Tech will have much to learn from them about the prospects.

IMPLEMENTATION MILESTONES

The 15 goals and pathways include many target dates for actions or achievement as part of their implementation. They are summarized in the table below, with date, relevant goal number and action milestone.

DATE	ACTION MILESTONE	GOAL
2020	BOV approves 2020 Virginia Tech Climate Action Commitment	
	30 percent renewable electricity	2
2021	E&SC renamed Climate Action, Sustainability & Energy (CASE) Committee	13
	Operation plan for Climate Action Living Laboratory (CALL)	11
	Candidate identified for zero-net-energy new building to be built by 2026	5
	First year of 10-year 2021-30 Energy Management Plan	3,4
	Fishburn Forest student-led assessment	2
2022	2.3 MW solar PV on Virginia Tech rooftop and land	2
	VTES Solarize Program for Town customers, 250 kW net metered	2
	Electricity use 10% below 2006 (Governor's E.O. 43)	4
	Newly initiated buildings EUI 20% below 2020 existing average	5
	Sustainable Procurement Policy v.2. implemented	8
2023	Virginia Tech Foundation energy efficiency plan for leased buildings (CRC)	14
	VTES Community Solar project for Town customers 0.5-1 MW	2
2024	Chiller Phase II Upgrade complete	3
2025	Complete conversion of steam plant fuel to natural gas	3
	Begin planning transition to renewable steam plant fuel	3
	Five-year Climate Action Commitment update: Explore options for 2030-2040	15
	Recycling rate 55%; waste diversion rate 85%; reduce trash to landfil/capita by 25%	7
	Reduce single-occupancy-vehicle commuting by 20%	9
	10 MW solar PV on Virginia Tech lands	2
	Explore geothermal heat pump hot water heating options for new districts	3
2026	Signature Zero-Net-Energy (ZNE) building on campus	5
2027	10 MW battery storage for Virginia Tech Smart Grid research by VT PEC-VTES partnership	2
	35 MW solar PPA with APCO/third party in SWVA including coalfields	2
2028	Newly initiated buildings EUI 40% below 2020 existing average	5
2029	100 MW solar PPA with APCO/third party in SWVA including coalfields	2
2030	Five-year Climate Action Commitment update: Explore options for 2040-50	15
	Carbon neutral campus operations	1
	100% renewable electricity	2
	Total building energy use down 10%; EUI down 20% below 2020	4
	Newly initiated buildings carbon neutral operations	5
	Carbon neutral agriculture/forestry operations	6
	Zero-waste campus	7
	Transportation emissions reduced 40% from 2020	9
2050	Fossil fuel-free campus	15

COSTS AND BENEFITS OF 2020 VIRGINIA TECH CLIMATE ACTION COMMITMENT GOALS AND PATHWAYS

The Working Group assessed the impacts of the 2020 Virginia Tech Climate Action Commitment goals and pathways including GHG emissions, fiscal costs and benefits, and implications for Virginia Tech's educational mission, operations, policies and governance, and culture. These implications are far-reaching and are presented in Chapter 3.

Major benefits are reduction of GHG and enhanced university reputation, culture, and educational programs linked to campus climate action and sustainability.

To implement the Climate Action Commitment goals, there will be costs and benefits for the university:

- Some initiatives (e.g., upgrades to the steam plant) are part of the cost of doing business, and the added costs to incorporate climate action goals may be small.
- Others, such as energy efficiency retrofits, have a positive return on investment.
- Others, including solar electric projects, will require major investment; however, creative power purchase agreements can reduce capital cost and achieve cost-effective results.
- Finally, some projects (e.g., the proposed University Compost Facility at Kentland) require capital and operating expenditures but provide substantial operational and educational benefits.

Effective Climate Action Commitment implementation will require changes in operations and governance. Goal 13 recommends establishing a University Office for Climate Action and Sustainability (OCAS) directed by a Chief Climate Action and Sustainability Officer that reports jointly to the Senior Vice President and Chief Business Officer and the Executive Vice President and Provost.

The university's financial uncertainties resulting from the Covid-19 pandemic require flexibility in implementing the Climate Action Commitment. As presented on the next page, much can be done with limited investment.

IMMEDIATE NEAR-TERM INITIATIVES (2020-22)

Although the 2020 Virginia Tech Climate Action Commitment focuses on 2030 as the target date for its goals, the pathway to those goals begins the day the Climate Action Commitment is officially adopted by the university, if not before. The Working Group has identified a number of initiatives and projects that can and should be acted on in the short term from now until 2022 with full understanding of the current budget constraints of the university. The "shovel ready" initiatives aim to get a jump start on necessary action and to demonstrate the university's commitment. They are listed below sorted by (a) low-cost/no-cost/revenue-neutral initiatives, (b) ongoing and budgeted projects, and (c) new priorities in need of funding and/or approval. These initiatives are described in Chapter 9.

a. Low/no cost/revenue neutral project/policy/planning initiatives

- Establish framework for Climate Action Living Laboratory (CALL) through the Office of the Provost and Executive Vice President, college deans, and the Division of Campus Planning, Infrastructure, and Facilities.
- Restructure the Energy and Sustainability Committee to oversee 2020 Virginia Tech Climate Action Commitment, renaming it the Climate Action, Sustainability, and Energy (CASE) Committee.
- Establish an alternative mobility subcommittee of the Transportation and Parking Committee.
- Develop plan for steam plant resilience/redundancy needs to complete conversion to natural gas by 2025.
- Develop a Utility Master Plan.
- Develop a Campus Energy Dashboard.
- Initiate Student Project for Fishburn Wind Energy Assessment.
- Promote partnership between Virginia Tech Electric Service and the Virginia Tech Power and Energy Center as part of Climate Action Living Laboratory.
- Initiate partnership with APCO on renewable electricity development.
- Initiate community relations with VTES Town of Blacksburg customers.
- Identify candidates for a zero-net-energy building on campus and develop fundraising plan.
- Engage Virginia Tech Foundation in energy efficiency retrofit plan for leased buildings.
- Adopt a Campus Tree Policy.
- Seek external funding for agrivoltaics test array at Catawba Sustainability Center.
- Implement and evaluate Sustainable Procurement Policy.

b. Ongoing budgeted projects

- Implement ongoing steam plant and chiller upgrade projects.
- Evaluate new natural gas contract on implications for Climate Action Commitment goals and pathways.
- 2020 RECs for 30 percent renewable electricity, continue through 2022 as needed.
- Implement Design and Construction Standards in light of Climate Action Commitment Goals.
- Fill the Virginia Tech energy manager position and supplement staff as needed.
- Implement budgeted projects in the Parking and Transportation Plan.

c. New priority projects in need of funding/approval

- Establish the University Office of Climate Action & Sustainability (OCAS) and appoint a university Chief Climate Action and Sustainability Officer (CCASO).
- Develop University Compost Facility at Kentland.
- Initiate 10-year energy management plan, 2021-30, and develop first year projects.
- Develop solar projects on campus: 2.3 MW by 2022: Sterrett and other rooftop projects.
- Implement zero-waste management consultant study.
- Implement a Green Lab Program.
- Dedicate consistent, annual funds to maintain existing trails, sidewalks, bicycle infrastructure.
- Implement transportation infrastructure plans (e.g., MMTF).

COMMUNITY ENGAGEMENT

Engaging the university community in the Climate Action Commitment update was part of the Working Group's charge and a critical component of our effort. The process overall–with its robust network of subcommittees–may be considered a true 'collaborative' enterprise, with over 130 students, staff, faculty, and community members involved. In terms of wider outreach, the Engagement Subcommittee originally planned on holding a major half-day town hall event on campus. Unfortunately, COVID-19 made that impossible.

The group responded by deploying a range of 'physically distanced' engagement activities:

- Dedicated website portal introducing the Climate Action Commitment process and sharing committee materials.
- Dedicated email address for the initiative.
- A series of 10 videos sharing progress of the Working Group and the subcommittees.
- A survey distributed widely throughout the community with 242 respondents.
- A series of 12 hour-long Zoom "convenings," attended by at least 226 participants.

Each of these streams of engagement is detailed in Chapter 5, and insights and information collected through them is summarized. Key findings from these various engagement efforts include:

- The vast majority of participants/respondents believe that climate change is a serious threat, and thus support aggressive action on the part of the university. In fact, many feel that Virginia Tech is not doing enough.
- The importance of setting ambitious goals and sticking to them was emphasized.
- Emphasis was placed on systemic or "upstream" solutions rather than placing the onus on behavior change of individuals, given that many of the barriers to action are infrastructural and institutional (e.g., poor cycling infrastructure).

- The above notwithstanding, many did see individual actions as important and needing of attention. Creative ideas emerged around how to, for example, 'gamify' desired actions.
- Key champions are important for propelling further action, including potentially a higher-level champion within university administration. This may be achieved through a stronger OCAS (see recomendation #13).
- There is strong support for taking a more holistic view of understanding our greenhouse gas emissions, accounting for emissions associated with community behaviors like commuting.
- There is broad support for key actions proposed through the Climate Action Commitment update process, including:
  - A shift to carbon neutrality and 100 percent renewable energy, including integrating renewable energy infrastructure into campus design.
  - Alternative transportation and reductions in private automobile usage, including a ban on freshmen car parking permits.
  - Improved waste management, including a new compost facility, and reductions at the source through purchasing decisions that minimize waste and promote sustainability
  - The creation of a 'living laboratory' to foster partnerships between campus operations, local partners, and the academic (teaching and research) enterprise.
  - A green lab system, and similar programs to promote sustainable behaviors within work and student life spaces.
  - Optimize building design, including with energy, water, and waste monitoring.
  - The need to account for climate justice in any and all actions taken.
  - Stronger partnerships with other institutions, including the Town of Blacksburg.
  - There is a strong desire to see engagement continue as the university shifts to implementation.

COMPARISON WITH PEER UNIVERSITIES

One of the Working Group's deliverables is a comparison of Virginia Tech progress in climate action to peer universities, and this is presented in Chapter 8. There are three good reasons for doing this:

1. To offer an evaluative reference point (i.e., to see how we are doing),
2. To adopt effective plans and avoid ineffective ones (i.e., to borrow good ideas), and
3. To demonstrate that what the university is proposing is feasible and in line with similar universities (i.e., to show it is not far-fetched to have a bold and aggressive climate action plan).

Knowing that our perspective is comprehensive and that other universities have different strengths in different areas, the Working Group decided to have our thematic subcommittees select the peer and exemplary universities to assess in their specific areas.

Those areas include:

- Buildings
- Renewable Energy
- Energy Systems
- Transportation
- Carbon neutrality and GHG inventory
- Budget and Finance
- Climate Justice
- Waste-Recycling-Composting
- Agriculture, Forestry, Land Use
- Community Engagement

In most areas the Working Group selected 3-8 universities that they consider to be peers or to be exemplary in that area. Some are from Virginia, some are Land Grants, some are from the Atlantic Coast Conference, some are far away, but all offer good examples and benchmark our progress to-date and our aspirations for the 2020 Climate Action Commitment.

All in all, our peer reviews told us that, while our 2009 Climate Action Commitment was right for its time and has led to improved energy efficiency and reductions in GHG emissions, it now lags behind the actions of many of our peers. This deficiency is most notable in the quest for carbon neutrality, for renewable energy, for zero-waste, for zero-net-energy buildings, for alternative transportation, and for community engagement to advance climate action and sustainable behavior.

Many of our related programs do standup well in comparison to others, but if Virginia Tech is to regain its leadership role in climate action and sustainability, it needs to move to a new Climate Action Commitment that is right for this time. Of course, that is what it has set out to do, and the Working Group believes that it has found the right balance of aggressive, yet pragmatic, climate action. The group's goals are to achieve carbon neutrality by 2030, 100 percent renewable electricity by 2030, investment in energy efficiency in existing and new buildings, carbon neutral agriculture, a zero-waste campus, sustainable procurement practices, sustainable mobility, climate justice as a core value, community engagement, and the establishment of a Climate Action Living Laboratory that will integrate these goals into the fabric of the university.

Relative to the peer and exemplary universities reviewed in this analysis, this 2020 Virginia Tech Climate Action Commitment sets the stage for Virginia Tech to shine as an exemplar and leader in university climate action. Beyond our climate neutrality and zero-waste campus goals, six areas of the 2020 Climate Action Commitment stand Virginia Tech above the rest:

1. The detail and specificity of the pathways developed to achieve the Climate Action Commitment goals
2. Our own unique utility VTES leading our way to 100 percent renewable electricity, while most other universities are totally dependent on private utilities and companies.
3. Using our considerable land resources not only to manage our agricultural climate impacts, but also to sequester carbon and develop renewable energy.
4. Incorporating in our carbon neutral goal scope 3 GHG emissions relating to behavior (e.g., commuting, waste/recycling, water/wastewater, business travel), while most others include just scope 1 and 2.
5. Integrating our physical climate action into the university's educational mission through the Climate Action Living Laboratory (CALL).
6. Specifically addressing community engagement, sustainable behaviors, and social equity and justice as core elements of our climate action.

LEARN MORE

View the full Virginia Tech 2020 Climate Action Commitment Working Group Report and associated appendices at **svpoa.vt.edu/index/VTCACRevision**.

Questions may be addressed to **climateaction@vt.edu**.

VIRGINIA TECH™

Virginia Polytechnic Institute Recycling Rate Report Calendar Year 2024

Contact Information

Reporting Solid Waste Planning Unit: Virginia Tech

Person Completing This Form: Teresa Sweeney **Title:** Waste & Recycling Manager, Facilities

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Summary: In 2024, several projects were completed on Virginia Tech's campus, including the demolition of Randolph Hall to pave the way for Mitchell Hall, the completion of the Undergraduate Student Life Building (USLB), Hitt Hall, and renovations to the War Memorial Gym and Lane Stadium. These projects significantly impacted our campus waste and recycling statistics. Although our single-stream and food waste numbers remained largely unchanged, our tracking system for waste and recycling efforts improved the accuracy of our other data.

Virginia Tech achieved a 52% recycling rate and an 89% waste diversion rate (the percentage of waste kept out of the local landfill) for 2024. These figures represent an increase from last year and move us closer to our Climate Action Commitment Goal #7.

This report is the result of data collected from our recycling and solid waste facilities and other campus stakeholders. I certify that I have personally examined and am familiar with the information submitted in this form. Based on my inquiry of the individuals immediately responsible for obtaining the information, I believe that the submitted data is true, accurate, and complete.

Teresa Sweeney — Waste and Recycling Manager — 3/21/25
Authorized Signature — 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 %

5843	/	5843	+	6630	X 100 =	47	%
TONS		TONS		TONS			

Step 2: CREDITS calculation

a. Total Recycling Residue	0 tons
b. Total Solid Waste Reused	271 tons
c. Total Non-MSW Recycled	36,414 tons
CREDITS	36,445 tons

Step 3: [(PRMs + CREDITS) / (PRMs + CREDITS + MSW Disposed)] X 100 = Adjusted Recycling Rate #1*

5843	+	36445	/	5843	+	36443	+	6630	X 100 =	87	%
TONS		TONS		TONS		TONS		TONS			

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

☒ **Adjusted Recycling Rate #1 + 2% SRP Credit = Adjusted Recycling Rate #2***

87	%	+ 2%	=	89	%

Step 5: Final Recycling Rate* for Solid Waste Planning Unit = 52 %

*** 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.**

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	494
Metal	1644
Plastic	255
Glass	0
Commingled (also known as Single Stream)	138
Yard/Wood Waste (composted or mulched)	3000
White Goods	4
Tires	7
Used Oil	9
Used Oil Filters	0.14
Batteries	7
Electronics	13
Fluorescent Bulbs & Ballasts	15
Food Waste Organic – Composting	246
Waste Cooking Oil	10
TOTAL PRMs	**5843** (PRMs)

(Enter Total on Page 2, Step 1)

Listing of sources for PRM data

1. Solid waste facilities from Virginia Tech which MSW disposed/recycled data was collected:
   a. Waste & Recycling – Facilities
   b. Non-Capital Construction-Facilities
   c. Capital Construction & Renovations -Facilities
   d. Dining Services – Division of Student Affairs
   e. Housing & Residence Life – Division of Student Affairs
   f. Environmental Health & Safety
   g. Fleet Services – Parking & Transportation
   h.
   i.

2. Other facilities/operations (not included in #1 above) from which MSW disposed/recycled data was collected:
   a. Montgomery Regional Solid Waste Authority (MRSWA) – Christiansburg, VA
   b. YMCA at Virginia Tech – Blacksburg, VA
   c. Campus Kitchens Food Donation Program – VT Engage – Blacksburg, VA
   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	YToss? Program (Collected – Student Move-Out)	17
Food Donation Prgm	Partnership w/Dining Services & VT Engage Grp	14
Surplus		240
	TOTAL SOLID WASTE REUSED	**271**

(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	VT Quarry Ops	11,254
Asphalt	Milled Asphalt from (USLB)	1,000
Masonry, Concrete, etc. Construction Projects (Mitchell Hall/USLB, Lane Stadium, War Memorial)		24,160
	TOTAL NON-MSW RECYCLED	**36,414**

(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: Campus Kitchens Program is a partnership with VT Engage & Dining Svcs (Division of Student Affairs) to donate excess food to local community.

SRP description: YToss Program collects reusable items from our students in residence halls during Spring Move Out for sale in the Fall of the following year.

SRP description: The Procurement Department's Sustainable Procurement Policy introduced in Spring 2020 and focuses on waste reduction at the front of the waste stream.

(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	5195
Commercial	
Institutional	
Other (DO NOT INCLUDE INDUSTRIAL WASTES)	1435
TOTAL MSW DISPOSED	**6630**

(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.*