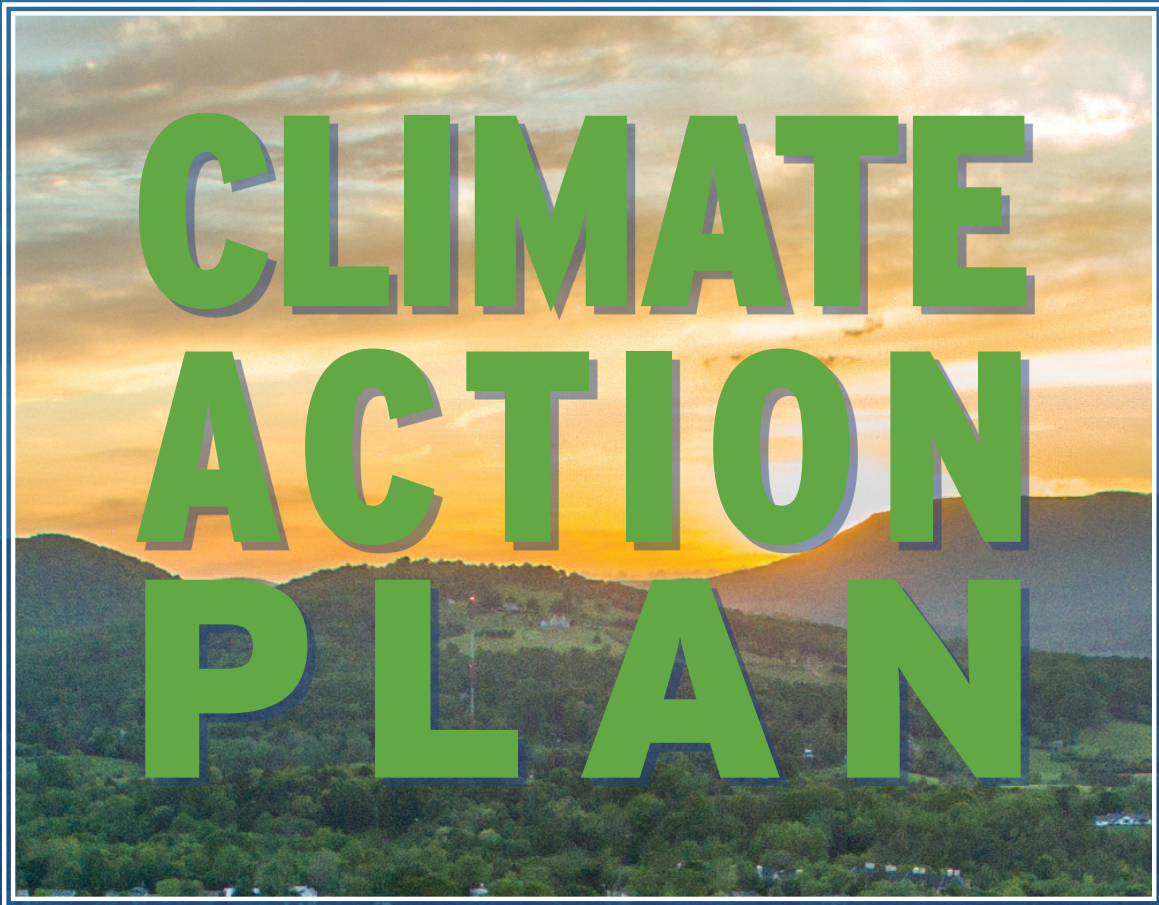


**WASHINGTON AND LEE UNIVERSITY**



**AN UPDATE FOR THE NEXT DECADE**

University Sustainability Committee Draft Report  
Submitted for Review, May 2019



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## I. ASSESSING PROGRESS AND REFRESHING FOCUS

Washington and Lee University's commitment to environmental responsibility, and to the reduction of our campus carbon footprint, in particular, is reaffirmed through the current University Strategic Plan, developed under the leadership of President Will Dudley and adopted by the University Board of Trustees in May 2018.

Through the inclusion of specific climate action initiatives, this Strategic Plan confirms Washington and Lee's continued dedication to the ultimate goal of carbon neutrality by 2050, established in 2007 when W&L joined the national Climate Commitment, and elevates climate action to a central place within broader University planning. A comprehensive update to the University's existing Climate Action Plan is a necessary tool for producing the direct environmental action called for in the Strategic Plan.

Washington and Lee's original Climate Action Plan was adopted in 2010. The document broadly outlines the University's commitment to reducing negative environmental impacts and to cultivating an environmentally aware and responsible campus community. It catalogs previous sustainability-related work on campus and suggests various initiatives in areas ranging from equipment upgrades to community engagement programs. The original document set the following three specific carbon reduction targets:

- 2013 – Reduce kBtu per Square foot by 25 percent of 2007 levels
- 2020 – Reduce Greenhouse Gas Emissions by 20 percent of 2007 levels
- 2050 – Achieve carbon neutrality

The first two of these goals, with target dates through 2020, have been met. Campus kBtu per square foot fell from 132 in December of 2009 to 96 by December of 2013, exceeding the 25% reduction goal. As of June 2018, campus kBtu per square foot was down to 82. The University's net greenhouse gas emissions have fallen from 26,453 metric tons of CO<sub>2</sub> (MTCO<sub>2</sub>) in 2007 to 17,311.3 MTCO<sub>2</sub> in 2018, a 34% reduction from 2007 levels.

The University's success in meeting these initial goals can be attributed to efforts in three focus areas:

- Equipment Upgrades - including boiler upgrades, lighting retrofits, extensive steam pipe insulation, and on-site solar arrays.
- Operations & Behavior Change - including comprehensive building HVAC schedules, temperature set point enforcement, daily office equipment shutdowns, and seasonal chiller/boiler and kitchen equipment management.
- Sustainability Initiatives - including increased campus composting and an expanded campus garden.

Thanks to great support for energy efficiency and sustainability initiatives from the University administration, and strong cooperation from across the campus community, good progress has been made since the submission of the original Climate Action Plan. Reductions are particularly notable for having been achieved over a period that also saw the addition of over 200,000 square feet in added residential housing and a new natatorium on campus. However, the gulf between our current emissions status and the goal of carbon neutrality remains wide, and further campus development and construction is imminent. Continued forward progress will require careful planning and diligent implementation.

This document is an update to the original Climate Action Plan, intended to build on that foundation and serve as a road map for the University's climate work over the next ten years and set interim goals to be met by the end of FY 2029. The proposed work is focused on the following categories:

- Energy Consumption
- Materials Management
- Transportation
- Education and Community Engagement
- Administration

While there are certainly many opportunities for work outside the categories and specific recommendations included in this document, the priorities highlighted herein are considered to have the greatest potential for immediate and significant impact on our campus greenhouse gas (GHG) emissions, and to be fundamental to building and maintaining community awareness of and support for climate action initiatives.

## II. WHERE ARE WE NOW? CURRENT CAMPUS EMISSIONS OVERVIEW

### A) GHG Calculation Methodology

Washington and Lee uses the Sustainability Indicator Management & Analysis Platform (SIMAP) to calculate our annual greenhouse gas emissions and maintain records of how data is collected and reported from year to year. This tool is managed by the University of New Hampshire and is a primary resource for GHG tracking and reporting in higher education. Annual calculated results are uploaded directly to the reporting platform for Second Nature, administrator of the Climate Commitment, where the University's annual progress evaluation is publically available.

Campus GHG emissions fall into three different categories, or "scopes," described by Second Nature as follows:

- Scope 1: Direct Emissions - Scope 1 emissions are those that are physically produced on campus (e.g. on-campus power production, campus vehicle fleets, refrigerant leaks). These sources are "owned or directly controlled" by the institution.
- Scope 2: Indirect Emissions - Scope 2 emissions are mostly associated with purchased utilities required for campus operation. They are indirect emissions resulting from activities that take place within the organizational boundaries of the institution, but that occur at sources owned or controlled by another entity.
- Scope 3: Induced Emissions - Scope 3 includes emissions from sources that are not owned or controlled by the campus, but that are central to campus operations or activities (e.g. non-fleet transportation, employee/student commuting, air travel paid for by the institution).

In GHG reporting, institutions have the option of evaluating Scope 2 emissions using either a "market-based" method, a "location-based" method. To date, recommended protocol for colleges and universities has been to employ the "location-based" method, which uses information about the electricity generation mix in the institution's region to calculate emissions factors. Second Nature has made the decision that starting in 2019, the institutional progress evaluations they publish will reflect the "market-based" approach. This approach more effectively captures the impact of an institution's participation in renewable energy markets, which often renders regional emissions factors irrelevant. This change will be retroactive.

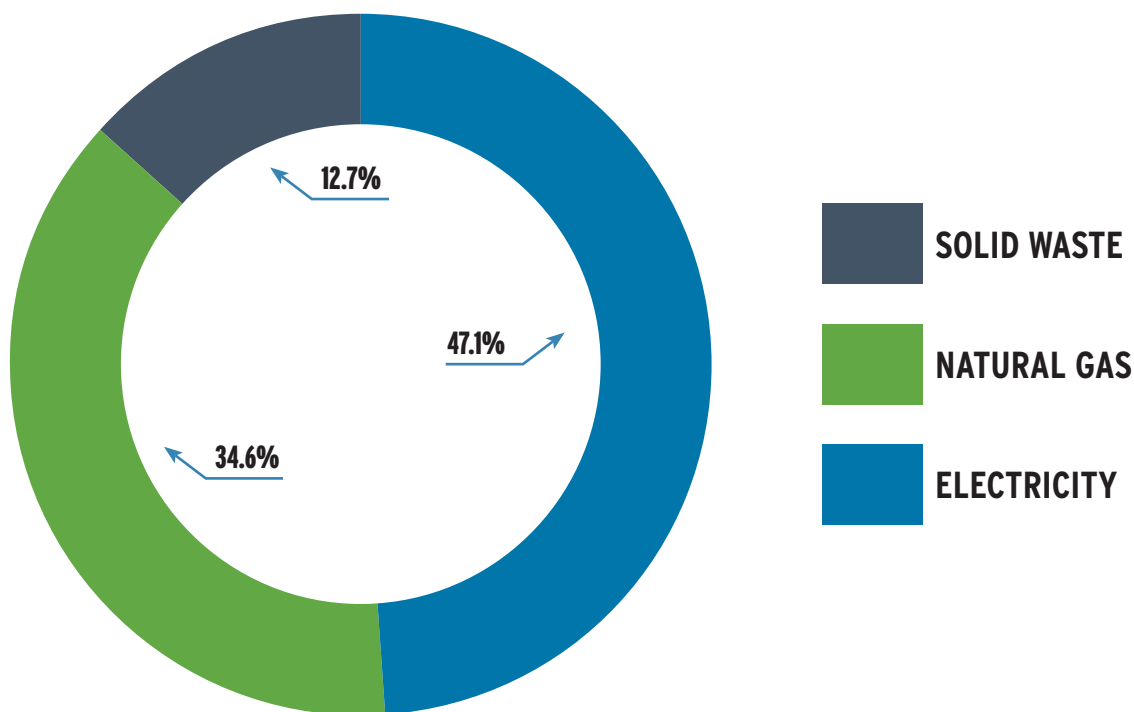
While W&L's historic GHG data inputs have not changed (this is not a case of correcting previous inputs), the Scope 2 emissions calculations using the market-based approach will be different from the location-based calculations, and we can expect to see a noticeable difference between those two numbers. Market-based evaluations will show higher emissions, as we will not receive credit for participating in the renewable energy market. The Scope 2 information in this document was produced using the heretofore recommended location-based method. Subsequent reports will provide emissions calculations using both methods so that we can continue to compare "apples to apples" in reviewing progress, but also begin evaluating future progress against a new benchmark.

### B) Current GHG Emissions Summary

In the fiscal year 2018, W&L's carbon footprint was calculated at 17311.3 Metric Tons of Carbon Dioxide Equivalent (MTCDE). Of that total, 47% of W&L's carbon emissions are Scope 2 emissions from purchased electricity. Scope 1 emissions account for an additional 36% of the total, attributable to stationary and mobile combustion. The remaining 16% of emissions fall under Scope 3, including waste and commuting.

A breakdown of emissions percentage by category indicates top targets for reduction are purchased electricity, on-campus stationary combustion (natural gas) and solid waste. Initiatives in these categories will have the greatest immediate impact on reducing campus emissions.

## FY18 EMISSIONS PROFILE



Note that Washington and Lee currently tracks all required inputs in the Carbon Calculator. Among the voluntary inputs that W&L does not currently track are: Directly Financed & Study Abroad Travel; Student Travel to/from Home; and Food.

Given the dominance of purchased electricity and natural gas in driving our campus emissions, initiatives targeting reductions in these areas will be the primary focus in the next steps for the University.



### III. MISSION EMISSIONS: NEAR-TERM GREENHOUSE GAS REDUCTION GOALS

#### A) Campus Energy Consumption

##### i) Current Energy Use Profile

In the most recently completed Fiscal Year, 2018, Washington and Lee consumed 22,213,941 kWh of electricity purchased from Dominion Virginia Power and 507,898 kWh produced from campus solar arrays. During this time 112,640 Dtherms of natural gas was used on campus, primarily to produce steam in the Central Plant. A solar thermal array contributes to the heating of the hot water system in Leyburn Library, producing roughly 210,031 MBTUs per year.

W&L's most recent GHG Report attributes 8,164 Metric Tons of Carbon Dioxide Equivalent (MTCDE), or 47% of total campus emissions, to purchased electricity consumption and 5,990.57 MTCDE, or 35%, to natural gas consumption.

Since the submission of Washington and Lee's original Climate Action plan in 2010, myriad initiatives have been implemented to curb energy consumption through infrastructure improvements and changes in behavior and operations. These include:

- Steam and chiller plant upgrades.
- Significant changes to chiller plant protocol and corresponding reductions in operation.
- Steampipe insulation program.
- Custom heating, ventilation, and air-conditioning (HVAC) schedules in all non-residential campus buildings and regular audits to confirm program function.
- Enforcement of thermostat set-point ranges of 68-72 in heating and 74 and above in cooling.
- Standardization of hot water resets, economizer conditions, and optimal start-stop in building automation.



- Incorporation of energy conservation in Residential Advisor training.
- Comprehensive holiday shut-down programming in residence halls and Greek and theme houses.
- Augmented sub-metering and improved community access to energy information through public dashboards.
- Construction and renovation informed by LEED guidelines.

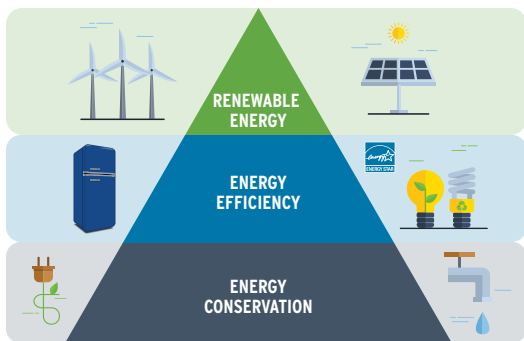
Reductions in emissions from purchased electricity and on-campus stationary combustion, primarily natural gas used to generate steam, will be the top priority in institutional next steps for carbon reduction.

A broad range of initiatives aimed at reducing campus energy consumption will fall within these categories:

1. Behavior & Operations
2. Infrastructure Improvements
3. New Construction & Renovation
4. Renewable Energy Sources

## ii) Proposed Energy Reduction Initiatives

### 1) Behavior & Operations



Through thoughtful building management and responsible departmental and individual practices, the W&L community can eliminate waste and ensure that energy is used on campus only to meet actual needs. Investments in infrastructure and equipment can help us manage that necessary load more efficiently, and renewable energy can allow us to serve those needs while producing fewer GHG emissions.

However, reducing that base load to a minimum, and working daily to maintain that minimum, must be at the foundation of emissions reduction efforts. It is recommended that Washington and Lee continue current practices and build on them in the following ways:

- a) University Facilities will engage in “continuous commissioning” of the Central Power Plant, regularly assessing for opportunities to increase efficiencies in boiler and chiller management and equipment.
- b) University Facilities and the Offices of Sustainability and Energy Education will further formalize collaboration in energy monitoring and improvements through joint quarterly reviews of campus building performance. Assessments will result in recommendations to include infrastructure improvements, operational adjustments, and specific education and outreach initiatives.
- c) With guidance and support from the Offices of Sustainability and Energy Education as needed, individual departments will review internal practices for energy waste reduction opportunities and implement any changes accordingly.
- d) Information Technology Services will review the feasibility of adopting a purchasing policy mandating Electronic Product Environmental Assessment Tool (EPEAT) rated equipment when applicable, and assess new technology acquisitions for energy efficiency and ease of shutting down during periods of non-use.

- e) Real-time water data is now available for all campus meters and will be used to develop plumbing upgrade recommendations and to design specific water conservation campaigns in the highest consumption areas. This will reduce the natural gas used to heat domestic water as well as the electricity required for pumping.
- f) Event and conference planning will consider the environmental impact of University facility use, consolidating meeting and residential spaces to maximize energy efficiency.
- g) The Offices of Sustainability and Energy Education will use the recently launched energy dashboard to increase community education and accountability.
- h) Student Affairs will emphasize the promotion of responsible energy use in residence halls as a stated responsibility of Residential Advisors and Community Advisors. Sustainability and Energy Education staff will communicate with RA/CA staff about positive results and opportunities for improvement.

## 2) Infrastructure Improvements

Since the University signed the Carbon Commitment in 2007, many efforts have been undertaken to improve the energy efficiency of the campus built environment, ranging from the addition of flue gas economizers on the central plant boilers to upgrading classroom light bulbs. Nonetheless, there remains a significant opportunity in further tuning our buildings for maximum performance. Initial steps include:

- a) Rewire lighting fixtures that are currently hard-wired to remain on unnecessarily, allowing control through a switch or motion sensor. (Immediate candidates include Lewis Hall library and Baker Hall).
- b) Conduct building envelope audits to identify priority weather stripping, insulation, and glass improvement projects.
- c) Replace hot water heater serving Baker and Davis Halls with smaller, instant unit more appropriate to actual use, now that the line no longer feeds residential hall showers.
- d) Change older showerheads and faucets in high water-consumption buildings for low-flow fixtures. Where cost is prohibitive in the short-term, aerators will be considered.
- e) Respond to recommendations from quarterly building performance assessments.
- f) Accelerate the transition to LED lighting throughout campus buildings, prioritizing projects by the inefficiency of current lighting and by highest hours of use (immediate candidates include the Parking Deck, Lewis Hall, the Lenfest Center, and the University Store).

## 3) New Construction & Renovation

All new construction and significant renovation projects should be considered in the context of a comprehensive campus space utilization analysis to avoid any redundancy. W&L's square footage to student ratio is high (STARS), and existing building space should be maximized before more is created. When construction and significant renovation are unavoidable, it is recommended that:

- a) Projects will be developed internally and presented for bid externally with explicit recognition of Washington and Lee's carbon neutrality goal as a frame for project parameters, and each project will include a target Energy Use Intensity (EUI). Recommendations have been provided through the Campus Master Planning process.
- b) All new buildings and, where possible, all significant renovations, will be certified at a standard of U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Silver or higher, or an equivalent independent, third-party certification standard selected and approved in cooperation between University Facilities and the University Sustainability Committee. Energy Efficiency categories should be a priority in meeting certification standards.
- c) PassiveHaus and NetZero design will be explored for feasibility on all new construction projects.
- d) Life cycle cost analysis will replace first-cost analysis in driving project decision-making.



- e) Every effort should be made to design mixed-use buildings (e.g. office, classroom, labs) to cluster HVAC zones by type of use for maximum flexibility in tailored heating and cooling schedules.
- f) Programmatic considerations will include appropriate times of use, and buildings will be designed for maximum energy conservation not only when they are in use but also when they are not (e.g. HVAC can be set back, lights can be switched off, etc.)

#### **4) Renewable Energy**

Currently, the University's renewable energy portfolio consists of two solar photovoltaic arrays, located on the roof of the University parking deck and the roof of Lewis Hall, and one solar thermal array on the roof of Leyburn Library. The solar voltaic arrays have a combined capacity of 444 KW, serving campus electricity needs. The solar thermal array provides energy for the library's hot water heating system.

A third solar voltaic array was completed on the roof of the student pavilion in September 2018 and is serving the electricity needs of the Duchossois Tennis Center. Currently, this electricity does not count as part of the campus renewable energy profile because W&L is not yet in possession of the associated Renewable Energy Certificates.

Increasing campus investment in renewable energy sources is critical to meeting University carbon reduction goals. Opportunities will include both on-campus generation and off-site projects.

#### **a) On-Campus Renewable Energy Generation for Electricity**

Generating electricity from renewable energy sources constructed on the W&L campus serves several important purposes. It offers a measure of energy independence; provides our community with a clear and visible signal of the University's commitment to environmental responsibility; and can support related hands-on learning opportunities for students.

However, the current state regulations in Virginia limit on-site renewable energy generation to a maximum of 1MW. Under this limitation, it is not possible to match 100% of our electricity consumption with on-campus renewable energy. Additionally, without storage capacity, an on-site array could not be the sole source of electricity delivered to campus. While on-site renewable energy projects cannot be our sole solution to eliminating Scope 2 emissions, they do have value and additional campus installations should be considered in the following ways and circumstances:

- When a new load is added through significant renovation and construction, every effort should be made to offset these additions through on-campus renewable energy projects, reinforcing the value that we must be accountable for our growth.
- When it will add off-grid capacity to support safety and security in essential spaces during power outages, for example, in designated campus emergency shelters, understanding that to function meaningfully in this capacity for an extended period, companion battery storage will be required.
- When an on-campus renewable energy project would support specific teaching and research outcomes as identified by faculty members who will be responsible for its curricular integration.

#### **b) Off-Site Renewable Energy Generation for Electricity**

Off-site renewable energy projects do not provide the campus with back-up power in the instance of grid failure, and they do not provide as neat and visible a symbol as on-site projects. They are, however, a vehicle for dramatic positive impact, both on our campus carbon profile and on our regional energy grid. Washington and Lee is

currently exploring off-site opportunities that could generate renewable energy equal to the University's total electricity load. The following options are currently under review.

- Participation in the wholesale renewable energy market: In this model, W&L would avoid the regulatory limits on on-site generation by participating in the deregulated wholesale market. The mechanics of such a project are as follows:
  - Select Virginia colleges and universities form a purchasing consortium representing total annual demand of a minimum of 10MW.
  - The consortium commissions the development of a renewable energy project to produce this energy.
  - Consortium members sell their percentage of the energy produced into the PJM wholesale electricity market.
  - As the parties responsible for the production of renewable energy, consortium members retain the Renewable Energy Certificates associated with their percentage of the energy produced, offsetting campus electricity.
  - W&L maintains a retail relationship with Dominion Virginia Power.
  
- Participation in the retail renewable energy market: Options under this model include:
  - Taking advantage of the regulatory exception allowing customers to purchase 100% renewable electricity from a Non-Utility Generator (NUG) if the regulated utility cannot offer the equivalent. Currently, Dominion Virginia Power does not offer a contract for 100% renewable electricity. The University is reviewing a proposal from a developer seeking to construct a 20MW array to serve a consortium of Virginia colleges as their retail electricity provider, replacing Dominion. Faculty and staff would have access to the array for teaching and research purposes. W&L would retain and retire RECs.
  - W&L can also take advantage of the above regulatory exception, as well as the one available to customers with a minimum 5MW demand, to purchase electricity from a NUG and contract for the purchase of 100% renewable energy through a third-party provider. In this case, W&L would not be associated with a specific renewable energy project, but would rather be taking advantage of an existing market opportunity. However, we would retain and retire RECs.

These options all circumvent the regulatory challenges posed by on-site generation and allow Washington and Lee, and, in the case of consortium projects, other college consortium members, to directly displace fossil-fuel generated power from the regional grid, replacing it with clean energy. The impact is real, direct, and significant.

In evaluating these options, W&L should remain mindful that the goal is not advantageous carbon accounting but thoughtful and meaningful change for reduced emissions, and the creation of new solutions to climate challenges. In evaluating opportunities, the following questions, among others, should be considered:

- Will W&L's participation catalyze renewable energy generation that would not have otherwise occurred, or significantly strengthen a renewable energy market that will benefit from a substantial University client?
- Is the purchased electricity verified through Renewable Energy Certificates (RECs) and will the University assume ownership of those RECs?
- Is the renewable energy independently certified by a reputable third-party?



- Is the University satisfied with the overall sustainability profile of the renewable energy project (energy source, impact on the local community, landscape, etc.)?
- If participation increases utility costs, is the added expense the best use of funds toward reaching climate action goals?

Successfully executed, any of the above options would eliminate purchased electricity emissions from the University's carbon profile, resulting in a 47% decrease in total emissions.

### **c) Renewable and Sustainable Heating Sources**

While recent University focus has been on renewable options for electricity, transitioning from natural gas to lower carbon sources for campus heating will ultimately require attention as well. As the institution is at the beginning of exploration in this area, the near-term next step is a comprehensive review of current options and opportunities in renewable and sustainable heating, such as geothermal heating systems and low carbon fuels, including biofuels. Simultaneously, the University will continue to focus on strategies for reducing consumption, including building envelope and heat recovery enhancements and lower domestic water use.

#### **iii) Interim Energy Goal for 2029**

Implementing a renewable energy strategy to address the University's total electricity load as described would eliminate all of Washington and Lee's scope 2 emissions from purchased electricity, which currently equal 8164 MTCDE, 47% of our total emissions profile. Through increasingly aggressive conservation and construction practices, we will also seek a modest reduction in campus consumption of natural gas, which currently accounts for 5990.57 MTCDE, 34.6% of our total campus emissions. Together, emissions from electricity and natural gas consumption currently total 14,154.57. We propose an interim goal of reducing the combined emissions from natural gas and electricity by 60%, which would eliminate 8492 MTCDE (for a remainder of 5662 MTCDE).

Reaching this goal would reduce total overall campus emissions by just under 50% of the current University total of 17,311.3 MTCDE.

## **B) Materials Management**

### **i) Current Purchasing and Waste Profile**

In Fiscal Year 2018, Washington and Lee recorded 710.32 short tons of landfilled waste, accounting for 2,201.99 MTCDE, or 12.7% of campus GHG emissions. An additional 59.23 MTCDE, less than 1%, was attributed to paper purchasing.

Washington and Lee's campus waste stream begins with campus purchasing. In order to responsibly steward our material consumption and reduce associated greenhouse gas emissions, we must focus first on what materials we bring to campus, and then diligently and thoughtfully plan for and execute the most environmentally friendly possible disposal.

W&L requires that all products purchased by the University must be Energy Star rated when the standard is relevant. Currently, this is the only formal, published, institutional purchasing policy. Purchasing decisions are otherwise made at the individual department level. While this practice appropriately gives control to those best positioned to choose suitable products, it fails to provide departments with the information and incentive necessary to prioritize environmental impact in the process.

At the other end of the purchasing process, W&L hosts both recycling and composting programs. Responsibility for campus recycling is divided between departments. Facilities Management provides receptacles and collection services, while the Office of Sustainability supplies signage and community education. Information Technology Services manages the recycling of University technology equipment.

The composting program is managed by the Office of Sustainability and staffed by the Director of Sustainability, the Campus Garden Manager, a part-time Dining Services staff member, and a team of student and faculty volunteers. Over the 2017-2018 academic year, over 65 tons of recycling was collected, and 22 tons of food waste was collected for compost.

While we can and must ensure responsible management of waste on campus, the fate of materials once they leave campus has become increasingly difficult to guarantee. As market forces diminish profitability, regional recyclers are limiting the types of products they will accept, and costs associated with recycling have increased. In the spring of 2019, a Waste Minimization Task Force will be convened to study opportunities for improving on-campus management but also for ensuring optimal management and outcomes all the way to the end of the process chain. The initial recommendations proposed below will be superseded by the recommendations of the task force once their work is concluded.

## **ii) Proposed Materials Management Initiatives**

Washington and Lee can more effectively manage material waste on campus through a variety of intentional initiatives including the following:

1. A University-wide Sustainable Purchasing Policy
2. Departmental purchasing policies that meet criteria outlined in the general University policy, but also provide specifics relevant to the needs and practices of individual offices. These should be detailed enough to serve as useful every-day reference guides for those making and approving departmental purchases.
3. A formal, institutional policy on recycling and composting programs, indicating their position as core operations functions.
  - a) A comprehensive organizational chart indicating staff responsibility for recycling and composting within relevant departments.
  - b) Additional staff assignments as necessary.
4. Resource allocation to increase the number and consistency of recycling receptacles on campus, including in outdoor locations.

## **iii) Interim Materials Management Goal for 2029**

Through changes in purchasing and waste management policies and administration, we seek a 20% reduction (452 MTCDE, for a remainder of 1809 MTCDE) in landfilled waste and paper purchase emissions by 2029.

## **C) Transportation**

### **i) Current Transportation Profile**

Washington and Lee's transportation-related GHG emissions are grouped into two broad categories: direct transportation and travel, including commuting.

Direct transportation falls within scope 1 of our greenhouse gas report and refers to transportation directly managed by the University, including the use of all University owned vehicles. Currently, W&L reports gasoline and diesel drawn from the on-campus fuel tanks, serving University owned vehicles in the departments of University Facilities, Public Safety, Athletics, Dining Services and Biology. In FY18, W&L reported the use of 23,531



US gallons of gasoline and 4247.55 US gallons of diesel fuel. This consumption totaled 1.5% (258 MTCDE) of our total emissions.

While University Facilities tracks fuel drawn from the three on-campus tanks, presently there is no university-wide system for tracking re-fueling off-campus, nor is there a mandate for tracking.

In addition to having no university mandate for tracking department-sponsored fuel consumption, the University does not have an official campus no-idling policy. The EPA estimates that idling wastes over 6 billion gallons of fuel annually, at a dollar cost of over \$20 billion a year, and a carbon cost of 20 lbs. of carbon dioxide per gallon.

Commuting falls within scope 3 of our GHG reporting and includes daily faculty, staff, and student commuting to and from campus. While W&L does capture daily commuting in current reporting, we are not currently tracking travel back and forth from campus over academic breaks, for study abroad, or for faculty and staff conference and professional development travel. Notably, University travel sponsored by Advancement and Admissions is also not included in our current reporting - meaning that the actual impact of University directed transportation is significantly larger than currently indicated.

## **ii) Proposed Transportation & Fuel Reduction Initiatives**

Basic next steps required to more fully address transportation emissions include:

1. Implement an official, prominently publicized no-idling policy on campus.
2. Formally assess the viability of retrofitting certain fleet vehicles to operate on bio-fuel (e.g, waste cooking oil from dining operations).
3. Evaluate opportunities for fuel reduction in grounds maintenance (mowing, leaf clearing, etc.).
4. Review current campus practices for documenting University travel and develop recommendations for gathering this department-specific information into a broader, University-wide, travel profile.
5. Research peer institutions for best practices in assessing both University-sponsored and non-University sponsored travel (student travel to and from campus) to develop recommendations on best approaches for Scope 3 tracking in this area.

## **iii) Interim Transportation & Fuel Goals for 2029**

Because current transportation tracking is incomplete, progress will mean that our reported emissions will get bigger before they get smaller. The immediate goal in this category is to take common-sense steps, such as prohibiting idling and instituting departmental tracking, and developing thoughtful goals and strategies for scope 3 transportation impacts.

# **D) Education & Engagement**

## **i) Current Education & Engagement Profile**

At present, academic opportunities in environmental studies, sustainability, and climate change are offered in the College, the Williams School and the Law School, including the classes "Sustainable Accounting" (accounting), "International Corporate Social Responsibility and Sustainability" (business), "Global Climate Change" (geology), "Environmental Service Learning" (environmental studies), and "Environmental Law" (law). Academic courses are complemented by programs outside the classroom, including the Offices of Sustainability and Energy Education and the Student Environmental Action League, or SEAL. New students and employees alike receive information about the University Energy Policy and campus recycling during their respective orientations, Sustainability

pre-orientation trips are offered to incoming first-year students, and themed programming is presented to the campus community on topics ranging from energy conservation to cooking with local ingredients.

However, while there are many sustainability-related offerings for students and employees on campus, none is central to the W&L experience. Many campus constituents are disengaged from intentional academic and extracurricular activities, and unaware of the University's climate action goals and GHG reduction initiatives.

## **ii) Proposed Education & Engagement Initiatives**

To more fully educate the W&L community on the University's climate action work and the role of departments and individuals in institutional success, we must increase the cohesiveness and centrality of environmental programming and messaging. Immediate efforts can include:

1. Increased visibility of sustainability efforts, including climate action, on the University web site, including a presence on the main page.
2. Increased signage and education about campus recycling and composting, ranging from explicit waste disposal instructions on campus receptacles to resources for understanding the campus waste stream "big picture."
3. On-site signage providing information about the solar arrays, LEED-certified buildings, intentional rain gardens and other designed environmental features on campus.
4. Increased use of "campus as a lab" in classes studying a wide variety of issues related to environmental topics, including policy, philosophy, accounting, marketing, and engineering.
5. Increased curricular offerings in sustainability, possibly to include an Introduction to Sustainability course.
6. Workshops and custom training courses, possibly for internal certification, on department specific environmental information. For example, a series on green cleaning offered to custodial staff, sustainable office and event management practices for administrative assistant staff, sustainable landscaping for grounds staff, etc.

While the impact of these efforts on actual carbon reductions will be indirect, they may be significant. An educated, aware and engaged community will support and increase environmental responsibility both on our campus and well beyond.

## **E) Administration**

### **i) Current Administration Profile**

Through the strategic planning process, President Will Dudley has reenergized W&L's commitment to carbon neutrality, first made by former President Kenneth P. Ruscio with his charter signature on the Carbon Commitment in 2007. This support from the highest office at the University, alongside a shared sense of purpose and responsibility across campus functions, is essential to success.

The original Climate Action Plan imagined carrying the Presidential level support through to the implementation phase with the creation of a President's Climate Task Force. With representation from across the University, the task force was envisioned as the vehicle to drive initiatives and oversee progress with the weight of the Office of the President empowering its efforts. This broad task force did not coalesce. Instead, certain central departments assumed responsibility for the targeted initial goals, working diligently but often without engagement from the broader campus community.

At this point, University efforts will benefit from an understanding that climate action work, and accountability, is a shared responsibility across campus. Initiatives are suggested in these three categories:

1. Organization & Accountability
2. Finance
3. Resilience

## ii) Proposed Administrative Initiatives

To facilitate expanded engagement across campus and to provide a regular system of measuring and reporting progress that captures broad University efforts, the following steps are recommended:

### 1) Organization & Accountability

- a) Promote climate action goal-setting within individual departments. With support from the Offices of Sustainability and Energy Education as needed, individual departments should thoughtfully review office practices and, where appropriate, make adjustments to reduce negative environmental impact. A typical review might include exploring possibilities for reduced printing, elimination of Styrofoam cups and/or plastic water bottles in breakrooms and at events, opportunities to plan office travel more efficiently, etc. Reviews should result in one or two realistic departmental goals with a plan and timeline for measuring progress (e.g. "use billing information to measure annual progress in reducing printing."). For some departments with a significant influence on the University's carbon profile, such as University Facilities, an internal review of major policies and practices has already been conducted, resulting in goals included in this document. Nonetheless, these departments will also benefit from an additional, more basic review, including office management, thermostat control, etc.
- b) Prepare an annual climate action progress report for submission to the University President. It is recommended that this report is produced by the Offices of Sustainability and Energy Education, with support from the University Sustainability Committee as needed. It is recommended that the report:
  - Summarize progress on the initiatives listed in this document, indicating areas where administrative support would accelerate efforts.
  - Include notes from specific departments on progress toward self-identified goals.
  - Report the results of the annual greenhouse gas audit and emissions increases/reductions.
  - Note relevant national and higher education changes, trends, etc.
  - Be made available to the W&L community through the University website and periodic public updates, as appropriate.

### 2) Financing

Many carbon reduction strategies are also cost reduction strategies. In reducing electricity, natural gas, and water use, the University is also reducing utility costs. In decreasing fuel consumption in campus vehicles and eliminating unnecessary travel, the University is likewise reducing expenses. Certain projects, such as meeting LEED construction standards, may require increased up-front costs but will result in savings over time. In short, decreasing emissions-producing waste often translates directly into improving efficiency and budgets. However, to mitigate obstacles in instances where the horizon for a return on investment may be longer, or where the nature of the project renders a dollar ROI projection an impractical or an inadequate measure of the project's



value to achieving institutional goals, it is recommended that the University explore three mechanisms specific to funding for sustainability projects:

- a) Green Revolving Fund – Seeded with a set amount of initial capital, Green Revolving Funds are used to finance projects that offer a return on investment. When those project-associated savings are realized, they are returned to the fund for use in financing the next project. Such a fund may reduce the difficulty of juggling funding for environmental initiatives with other mission-critical priorities. Strong measurement and verification tools and intentional review practices would be required to ensure the efficacy of this option.
- b) Student Directed/Funded Initiatives – Several institutions of higher education have successfully funded sustainability projects through student-body elected green fees or funding allocations from bodies of student government. It is recommended that W&L undertake a review of best practices at peer schools as a first step to evaluating the potential effectiveness of student-centered funding initiatives at Washington and Lee. Discussions of potential applicability at W&L should include members of the student body and of student government.
- c) Advancement Support – This document can serve as a useful initial tool for identifying University sustainability priorities that may meet the interests and values of potential University donors. Funding opportunities in this area have the potential to attract support from alumni, parent, corporate and foundation donors who have not previously been philanthropically engaged with the University.

While many carbon reduction initiatives will be cost neutral or cost positive, and creative financing opportunities are available, the University recognizes that carbon neutrality is a firm institutional goal, and as such, it is appropriate to assess projects on their value to achieving this goal, rather than adopting or abandoning them based on their demonstrated return on investment.

### 3) Resilience

For decades, the conversation around climate change hinged on the concept of avoidance - taking action so that the world would never have to face the negative impacts of climate change. In recent years, with the recognition that at this point some impacts of climate change are already unavoidable, and indeed already occurring, the concept of resilience has joined this conversation. This aspect of climate work examines institutional exposure and vulnerability to various impacts of climate change and how to both maximize the usefulness of University assets (social, human, natural, financial and physical), and how to protect them.

Resilience is not an area that has been addressed as such to date at Washington and Lee. As a first step, it is recommended that staff members from the Offices of Sustainability and Energy Education:

- a) Participate in Higher Education Resilience workshops and training, and review best practices at peer institutions.
- b) Based on the above, present recommendations for next steps to the University Sustainability Committee, and other campus committees and organizations as appropriate.

## IV. CONCLUSION

This document seeks to provide a plan for the next phase of climate work at Washington and Lee that is both aggressive and realistic. However, the strategies and goals detailed here will necessarily be dynamic in response to changing campus needs and resources as well as evolutions in available technology. Regular review, revisions, and additions as needed, are required to ensure that the above initiatives, or alternative and improved replacement initiatives, are progressing on pace.

Simultaneous to the work indicated in this document, Washington and Lee must remain proactive in developing the next wave of solutions. These will include an emphasis on cleaner fuel, campus food sources and offerings, and more sustainable water management, among other topics. As an understanding of the contributors to and impacts of climate change evolves, so will our institutional responses and timelines.

The reality of global climate change presents the University with the enormous challenge, responsibility, and opportunity to take real and direct action, demonstrate meaningful and principled leadership, and build the foundation of future solutions through the thoughtful education of our students. Through our climate action planning, we fully inhabit our institutional mission, and our motto, *non-incautus futuri*.

## V. ACKNOWLEDGMENTS

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