Virginia Tech Sustainability Plan:

2014 Update and

Supplement to 2009 VTCAC&SP

Energy & Sustainability Committee

April 2014

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I. THE VIRGINIA TECH CLIMATE ACTION COMMITMENT

A. Historical Perspective

Virginia Tech has long embraced recycling efforts, waste reduction, energy savings, and other sustainability measures, but a formal commitment or program was lacking until December 2007. That is when Virginia Tech students, led by their group The Environmental Coalition, met with Virginia Tech President Charles W. Steger to encourage him to sign the American College and University Presidents Climate Commitment (PCC). The PCC Mission Statement declares "colleges and universities must exercise leadership in their communities and throughout society by modeling ways to eliminate global warming emissions, and by providing the knowledge and the educated graduates to achieve climate neutrality." President Steger told the students he would review the PCC before making a decision. In addition, he said he would only commit the university to do what is achievable given limited resources.

In April 2008, President Steger announced his decision to not sign the generic Presidents Climate Commitment, and provided his rationale for why the university would be better served by developing a commitment and sustainability plan that is specific to Virginia Tech and outlines clear, measurable, and realistic goals. He therefore charged the newly formed Energy and Sustainability Committee with the responsibility to develop a Virginia Tech climate commitment and a sustainability plan to achieve it. Furthermore, President Steger directed the commitment be placed in resolution format and forwarded through the university governance system.

During the 2009 Spring Semester the resolution was successfully advanced through the university governance process. On Earth Day April 22, 2009, the University Council approved the "Virginia Tech Climate Action Commitment" (VTCAC) and accepted the accompanying Sustainability Plan.

On June 1, 2009, the Virginia Tech Board of Visitors unanimously approved The Virginia Tech Climate Action Commitment. It subsequently became the President's Policy Memorandum No. 262 The Virginia Tech Climate Action Commitment Resolution on July 31, 2009.   The policy is shown in Appendix A.

B. The 2009 Virginia Tech Climate Action Commitment

The 2009 Virginia Tech Climate Action Commitment contained 14 distinct points. Among the features it committed the university to do the following:

- Be a Leader in Campus Sustainability.
- Represent the Virginia Tech Climate Action Commitment and Sustainability Plan (VTCAC&SP) in the Virginia Tech Strategic Plan.
- Establish a target for the reduction of campus greenhouse gas (GHG) emissions to 80% below the 1990 emission level by 2050, with interim targets for 2012 and 2025.

- Improve energy efficiency and the reduction of energy waste.
- Engage students, faculty, and staff to reduce energy, water, and materials consumption through education and involvement.
- Pursue US Green Building Council Leadership in Energy and Environmental Design (LEED) Silver certification or better for all new buildings and major renovations.
- Establish an Office of Sustainability to oversee the implementation of the VTCAC, to monitor annual energy usage and GHG emissions, to coordinate campus sustainability efforts.
- Prepare an annual "report card" showing sustainability progress.

C. 2013 Update to the Virginia Tech Climate Action Commitment

Point 13 in the VTCAC states that periodic reviews of the resolution would be conducted and adjustments made as appropriate. During the Academic Year 2012-2013, the Energy and Sustainability Committee conducted a detailed review of the language contained in each of the VTCAC fourteen points. In addition, the Committee reviewed the status of the implementation of the actions and measures in the Immediate Phase of the Sustainability Plan.

The Energy and Sustainability Committee prepared a detailed spreadsheet that contained the original language for the 14 points in the VTCAC, and provided recommended changes to that language along with the rationale for those recommended changes.

In April 2013 the Energy and Sustainability Committee forwarded the proposed revisions to the Commission on University Support. The Commission created the Resolution to Update the Virginia Tech Climate Action Commitment, which included the detailed spreadsheet, and forwarded it to the University Council for action. The Commission on University Support Resolution 2012-2013D is shown in Appendix B.

The University Council approved the proposed revisions to the VTCAC on May 6, 2013, and Virginia Tech President Steger subsequently signed Presidential Policy Memorandum No. 262 (Revision 1) on May 9, 2013. The Update to the Virginia Tech Climate Action Commitment is shown in Appendix C.

II. VIRGINIA TECH CLIMATE ACTION COMMITMENT & SUSTAINABILITY PLAN IMPLEMENTATION

A. Overview

The 2009 Virginia Tech Sustainability Plan that accompanied the VTCAC was developed as a working document to provide actions and measures that, when implemented, would position the university to achieve the goals in the VTCAC. The Sustainability Plan also contains the first greenhouse gas (GHG) emissions inventory for the university. The Plan is organized into six action categories and subcategories, which contain a number of proposed actions and measures for implementation. The six categories are as follows:

- Administrative Structure and Governance
- Facilities Infrastructure
- Facilities Operations
- Transportation
- Behavior and Campus Life
- Academic Programs

The Sustainability Plan is organized into three implementation phases. The Immediate Phase (2009-2012) identifies a number of no-cost and low-cost modifications to campus operations that can have an immediate impact and result in substantial savings. The Sustainability Plan looks beyond three years and identifies potential goals and strategies for the Mid-Term Phase (2013-2025), and the Long-Term Phase (2026-2050). The primary focus of implementation is with the Immediate Phase.

The Sustainability Plan contains 119 separate proposed actions and measures for implementation. There are 85 identified for the Immediate Phase, 27 for the Mid-Term Phase, and 7 for the Long-Term Phase. The full Plan is given at
https://www.facilities.vt.edu/documents/sustainability/VTCACwithAppendices.pdf.

B. Sustainability Plan Progress

In accordance with VTCAC point 5, the Office of Energy and Sustainability was established on June 1, 2009 to oversee the implementation of the Sustainability Plan. In order to measure our sustainability progress, the VTCAC&SP Status Report was created to track the status of the 85 actions and measures identified in the Immediate Phase (2009-2012). The Status Report is a detailed spreadsheet, which is organized and aligned using the six action categories shown above. Actions and measures are listed in the same order as they appear in the Sustainability Plan. For each action and measure, the spreadsheet contains a brief description or rationale for that item, the status details, and the contact information of the person most responsible for oversight of the item. The overall status of each item is summarized using a color code as follows:

- Green indicates the action or measure has been completed or implemented.
- Yellow indicates the action or measure is in the process of being implemented.
- Red indicates the action or measure is either on hold or it has been cancelled.

The VTCAC&SP Status Report was updated on a quarterly basis and served as an effective management tool. The final Status Report was completed on July 17, 2012 and is shown in Appendix D. As shown in the upper right hand corner, 64% of the 85 actions and measures were coded green, indicating they were complete, 25% were coded yellow, indicating they were being implemented, and 11% were coded red, indicating they were on hold or canceled. The significant point is that three years after approval of the VTCAC, over 89% of the actions and measures identified for the Immediate Phase had been completed, or were in the process of being implemented.

C. Sustainability Annual Reports

In accordance with VTCAC point 13, the Office of Energy and Sustainability has the responsibility for preparing annual sustainability reports for presentation to the Virginia Tech Board of Visitors. The 2010 *Annual Report on Campus Sustainability at Virginia Tech* was the first such publication and it may be viewed at Appendix E. The report includes an Executive Summary and progress to date for each of the VTCAC's 14 points.

The *Campus Sustainability at Virginia Tech 2011 Annual Report* is shown in Appendix F. The format for this report was changed to align with the six action categories in the VTCAC&SP.

The format for the 2012 annual report was significantly modified with measurements and metrics displayed using six bar charts with comments, and some narrative highlights as shown in Appendix G.

The *Virginia Tech Sustainability Annual Report 2012-2013* utilized the same six bar charts with comments, and expanded the highlights section to capture significant sustainability achievements and programs as shown in Appendix H.

D. Virginia Tech Sustainability Program Recognition

The Virginia Tech Sustainability Program formally began during the Academic Year 2007-2008 and it quickly gained recognition at the local, state, and national levels. The university, the Town of Blacksburg, and the local citizens group, Sustainable Blacksburg formed a green partnership for sustainability collaboration and education.   Consisting of over 30 separate events, Sustainability Week 2007 was launched the last week in October and included national, state, and local level guest speakers, educational activities, practical workshops, a Campus Sustainability Fair and a Town of Blacksburg Sustainability Fair. The Commonwealth of Virginia Secretary of Natural Resources proclaimed this event as a model program that should be adopted on a state wise basis.

Item 1 in the VTCAC states: Virginia Tech will be a Leader in Campus Sustainability. Here is a representative listing of the notable achievements and accomplishments the university has received:

- Association for the Advancement of Sustainability in Higher Education's "Sustainability Tracking, Assessment, and Rating System (STARS)" Silver Rating.
- Five "Governor's Environmental Excellence Awards" (2 Gold and 3 Bronze) (2008, 2009, 2011, 2013 and 2014).
- Featured in the Princeton Review's *"Guide to Green Colleges"* in 2011 (inaugural year) and for three consecutive years (2012-2014).
- Sixteen US Green Building Council Leadership in Energy and Environmental Design (LEED) registered new construction and major renovation projects representing nearly 1.3 million gross square feet (GSF). Specifically:
    - Nine projects LEED Certified (4 Gold, 4 Silver, 1 Certified)
    - Two projects awaiting LEED certification
    - Three projects under construction
    - Two projects in design
- "Best of Green Schools" in 2013 by the US Green Building Council for best collaboration (Celebrate Sustainability 2013 Program – formally Sustainability Week).
- "Tree Campus USA" Accreditation by the National Arbor Day Foundation in 2008(inaugural year) with Reaccreditation each year for five consecutive years (2009-2013).
- "Bicycle Friendly University" designation from the League of American Bicyclists.
- Best Workplaces for Commuters designation by the US EPA for five consecutive years.
- "Campus Sustainability Report Card" B+ overall rating in 2011 from the Sustainable Endowments Institute (program began in 2008 and concluded in 2011).

III. Changes in Tracking Campus Sustainability

Since the release of the Virginia Tech Sustainability Plan, the national movement for campus sustainability has evolved. The Association for the Advancement of Sustainability in Higher Education (AASHE) has become the leading organization for promoting campus sustainability, and its Sustainability Tracking, Assessment & Rating System (STARS) has become the accepted tool for evaluating and comparing campus progress towards sustainability. Virginia Tech was an early member of AASHE and participated in the STARS assessment in 2011 and 2013.

Because AASHE STARS has become the national standard for tracking and assessing university sustainability progress, the university chose to use STARS as its primary monitoring and management tool in lieu of using the campus Report Card.

A. Overview of the Sustainability Tracking, Assessment, and Rating System (STARS)

The Sustainability Tracking, Assessment & Rating System (STARS) is a transparent, self-reporting framework for colleges and universities to measure their sustainability performance. STARS was created by the higher education community for use by the same. STARS is a comprehensive management tool that encompasses the environmental, economic, and social dimensions of sustainability. STARS is designed to:

- Provide a framework of understanding sustainability in all sectors of higher education.
- Enable meaningful comparisons over time and across institutions using a common set of measurements developed with broad participation from the campus sustainable community.
- Create incentives for continual improvement toward sustainability.
- Facilitate information sharing about higher education sustainability practices and performance.
- Build a stronger, more diverse campus sustainability community.

STARS is a Rating System that uses a 100 point scale. The minimum score required for a specific STARS Rating is as follows: Bronze: 25; Silver: 45; Gold: 65; and Platinum: 85.

STARS contains 135 separate subject areas called "Credits." There are two types of credits which are called "Tier 1 and Tier 2 Credits."

- Tier 1 Credits focus on performance. Credits are based on measurements of sustainability performance and are typically quantitative. Tier 1 credits have point values from 1 to 14.
- Tier 2 Credits focus on strategies. Credits target approaches or processes that can be implemented to improve an institution's performance. All Tier 2 credits have a point value of 0.25.
- STARS strives to prioritize performance over strategy.

The STARS Technical Manual provides a detailed description of the information and data requirements for each of the 135 STARS credits; the manual can be found at (http://www.aashe.org/files/documents/STARS/stars_1.2_technical_manual.pdf).

The Credits are placed in one of the following three broad categories:

- Education & Research (ER) Category (20% of the credits):

- Operations (OP) Category (53% of the credits):

- Planning, Administration & Engagement (PAE) Category (27% of the credits):

While the number of credits in each of the three categories is different, the total point value for each of the three categories is 100. The Operations Category has over half of the total credits.

STARS has a fourth category - the *Innovation Category*. An institution can receive one additional point towards its overall score for having implemented an innovation credit that is not covered by any of the STARS credits. An innovation credit requires a Letter of Affirmation from a subject matter expert at the institution confirming its uniqueness. The institution can earn up to four innovation credits, which are added to the average score of the points earned in the three primary categories.

The information and data submitted for a STARS rating must be accompanied by a letter from the institution's president that affirms the accuracy of all of the documentation. A STARS rating is good for 3 years. If, during the 3 year period following the STARS submission, an institution wishes to submit additional documentation and seek a new STARS rating, it must re-register with STARS. Changes to the submitted information can be made at any time by designated personnel. When appropriate, the institution can then re-submit their new documentation for a new STARS rating.

In conclusion, STARS provides the university with a reporting tool to manage 135 sustainability topics areas (credits). STARS is used by our peer institutions and is nationally recognized as the best sustainability product available to measure the university's sustainability performance.

B. Virginia Tech STARS Results

Table III-1 gives Virginia Tech's summary results for submitted in August 2011. The university scored earned 75 percent of the total available points in the Education & Research Category, 73 percent of the total available points in the Planning, Administration, & Engagement Category, and 29 percent of the total available points in the Category. The total of 61.91 points earned Virginia Tech a Silver rating.

Table III-1 Virginia Tech STARS submission, August 2011

Category	Points Earned	Category Score
Education & Research	75.01	75.01%
Operations	29.14	29.14%
Planning, Administration & Engagement	72.40	72.58%
Provisional Score		58.91
Innovation Credits (3)		3.00
TOTAL SCORE for STARS		**61.91**

Table III-2 gives a summary of the results for latest STARS rating submitted in 2013. Scores were similar to the initial submission.

Table III-2 Virginia Tech STARS submission, March 2013

Category	Points Earned	Category Score
Education & Research	75.01	75.01%
Operations	30.76	30.76%
Planning, Administration & Engagement	72.13	72.13%
Provisional Score		59.30
Innovation Credits (4)		4.00
TOTAL SCORE for STARS		**63.30**

Table III-3 gives more detailed results showing category and subcategory available points and points earned by Virginia Tech. A particular challenged in earning points under the Operations Category is STARS uses a base year of 2005 to determine progress in a particular item.

Table III-3a STARS Education & Research and Virginia Tech Points Earned

Sub-Category	Points Available	Points Earned
Co-Curricular Education	18.00	12.25
Curriculum	55.00	35.76
Research	27.00	27.00
Total Points	100.00	75.01
Overall SCORE for ER		**75.01%**

Table III-3b STARS Operations and Virginia Tech Points Earned

Sub-Category	Points Available	Points Earned
Buildings	13.00	1.89
Climate	16.50	2.25
Dining Services	8.50	2.82
Energy	16.50	1.58
Grounds	3.25	1.57
Purchasing	7.50	3.97
Transportation	12.00	5.15
Waste	12.50	8.28
Water	10.25	3.25
Total Points	100	30.76
Overall SCORE for OP		**30.76%**

Table III-3c STARS Planning, Administration, Engagement and Virginia Tech Points Earned

Sub-Category	Points Available	Points Earned
Coordination & Planning	18.00	18.00
Diversity & Affordability	13.75	13.75
Human Resources	19.75	16.30
Investment	16.75	0.43
Public Engagement	31.50	23.47
Total Points	99.75*	71.95
Overall SCORE for PAE		**72.13%**

C. Process of Converting to STARS

As discussed in Section II, the Office of Energy & Sustainability has continually monitored progress in implementing the 2009 Plan in the Sustainability Plan Status Report that tracked 119 different items. The process of converting the Sustainability Plan to STARS involved cross-checking the 119 Sustainability Plan Status Report items to the 135 STARS credits. OES staff developed a spreadsheet for this cross-check. A portion of the spreadsheet is shown in Table III-4, which shows the Education & Research category. The process aligned the STARS credits with the Status Report items, and Status Report items that did not align were identified as VT-Unique items. The E&SC subcommittee working on the Plan update reviewed these VT-Unique items, decided which were still valid and of those which needed to be updated. The complete spreadsheet is shown in Appendix I.

Table III-4 Aligning STARS Credits and VTCAC Education & Research

EDUCATION AND RESEARCH (ER)						
Fall Semester 2013						
STARS Credit Number and Title	Points Possible	STARS v 1.2 Rating 3/19/2013	Credits Pursued STARS v 1.2	VTCAC&SP Status Report Item	VTCAC Component No.	Comments: Credit maintenance or new programs needed to claim points in future STARS Report(s)
Co-Curricular Education						
ER-1: Student Sustainability Educators Program	5	0	Not Pursuing	#45, 60		Could claim points if a "Sustainability Advisors/Eco Rep" peer-to-peer program is initiated
ER-2: Student Sustainability Outreach Campaign	5	5	Pursuing	#10, 72		
ER-3: Sustainability in New Student Orientation	2	2	Pursuing	#46		
ER-4: Sustainability Materials and Publications	4	4	Pursuing	#47, 50		May need to reinstate newsletter to claim full points in future
Tier2-1: Student Group	0.25	0.25	Pursuing			
Tier2-2: Organic Garden	0.25	0.25	Pursuing			
Tier2-3: Model Room in Residence Hall	0.25	0	Not Pursuing	#61		Could pursue in the future
Tier2-4: Themed Housing	0.25	0	Not Pursuing			Could pursue in the future
Tier2-5: Sustainable Enterprise	0.25	0	Not Pursuing			Could pursue in the future
Tier2-6: Sustainability Events	0.25	0.25	Pursuing	#33		
Tier2-7: Outdoors Program	0.25	0.25	Pursuing			
Tier2-8: Themed Semester or Year	0.25	0.25	Pursuing			Have claimed in past w/"Common Book Project" (09-10 and 10-11). Will need new program or common book that emphasizes sustainability to claim these points in the future
Curriculum						
ER-5: Sustainability Course Identification	3	3	Pursuing	#78		Course inventory will need to be updated, currently dated Summer 2012 (can cover 1, 2, or 3 years)
ER-6: Sustainability-Focused Courses	10	8.83	Pursuing	#78	12	Course inventory will need to be updated, currently dated Summer 2012 (can cover 1, 2, or 3 years)
ER-7: Sustainability-Related Courses	10	2.00	Pursuing	#78	12	Course inventory will need to be updated, currently dated Summer 2012 (can cover 1, 2, or 3 years)
ER-8: Sustainability Courses by Department	7	5.47	Pursuing	#78		Course inventory will need to be updated, currently dated Summer 2012 (can cover 1, 2, or 3 years)
ER-9: Sustainability Learning Outcomes	10	6.46	Pursuing	#78		Currently calcuated from AY 09-10. Will need to be updated
ER-10: Undergraduate Program in Sustainability	4	4	Pursuing	#79		
ER-11: Graduate Program in Sustainability	4	4	Pursuing			
ER-12: Sustainability Immersive Experience	2	2	Pursuing	#77		
ER-13: Sustainability Literacy Assessment	2	0	Not Pursuing			Could pursue in the future
ER-14: Incentives for Developing Sustainability Courses	3	0	Not Pursuing			Could pursue in the future
Research						
ER-15: Sustainability Research Identification	3	3	Pursuing	#82		Research inventory will need to be updated
ER-16: Faculty Involved in Sustainability Research	10	10	Pursuing	#82		Research inventory will need to be updated
ER-17: Departments Involved in Sustainability Research	6	6	Pursuing	#82		Research inventory will need to be updated
ER-18: Sustainability Research Incentives	6	6	Pursuing	#82		
ER-19: Interdisciplinary Research in Tenure and Promotion	2	2	Pursuing	#82		
Total	100	75.01				

VT Unique Items						
			I	#81		Promote new research in energy efficiency and sustainability using undergraduate research and the university campus as a living laboratory.
			O	#85		Career Services provides information on Green Jobs to career counselors.

The subcommittee also identified additional goals, objectives, and strategies (GOS) that should be considered as VT-Unique GOS in the Sustainability Plan update. The results of this effort are presented in the next section.

D. 2014 Update of 2009 Virginia Tech Sustainability Plan

This 2014 Update of the 2009 Virginia Tech Sustainability Plan integrates the goals, objectives and strategies of the 2013 Update to the Virginia Tech Climate Action Commitment (VT CAC) and adopts the AASHE STARS program as its primary monitoring and management tool. It also includes Plan goals, objectives and strategies (GOS) that go beyond the STARS protocol, what we call VT-Unique GOS.

This section presents the Plan, organized by the 2013 VT CAC. The section shows how STARS credits and VT-Unique GOS relate to the 14 points of the VT CAC. Relevant STARS credits are listed under each CAC point. More detailed STARS strategies and metrics are found in the Virginia Tech AASHE STARS documentation. VT-Unique GOS are given for each VT CAC point, including updated elements of the 2009 Plan (marked with * below) as well as new elements (marked with ** below). Appendix J uses this format to give a summary of progress for each CAC point, based on the March 2013 STARS submission or current (April 2014) status of VT-Unique GOS.

The Virginia Tech Climate Action Commitment Update 2013
Presidential Policy Memorandum No. 262 (Revision 1)

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

   - STARS Credits
     - All Planning, Administration, Engagement (PAE) Sub-Categories:
     - Operations: Grounds
     - Operations: Water
     - Operations: Dining Services
   - VT-Unique GOS:
     1.1. Achieve and maintain a STARS Gold Rating. **
     1.2. Continue to be recognized in the Princeton Review's "Guide to Green Colleges." **
     1.3. Continue to be recognized in Governor's Environmental Excellence Awards and other state and national programs. **
     1.4. Provide environmental stewardship of campus, balancing physical development, recreational, and agricultural needs with protection of ecological, vegetative, air quality, water, and other natural resources. **
     1.5. Become a Leader in Campus Dining Services Sustainability. **
     1.6. Implement Policy 5505: Campus Energy, Water and Waste Reduction. *

1.7. Continue to develop and implement innovative sustainability programs. **

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

- STARS Credits:
  o PAE-2 Strategic Plan
- VT-Unique GOS: None Applicable

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

- STARS Credits:
  o Operations (OP) OP-5 (GHG reductions)
- VT-Unique GOS:
  3.1. Continuing progress toward GHG target. *

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

- STARS Credits: Operations
  o OP-7 Building Energy
  o OP-8 Clean and Renewable Energy
  o Tier 2-13 to 2-18: Timers, sensors, metering, LED lighting, energy management
- VT-Unique GOS:
  4.1. Reduce electricity and energy consumption per gross square foot and per enrolled student. *
  4.2. Continue enhancements and upgrades to central chilled water system to improve efficiency. *
  4.3. Employ Energy Service Company (ESCO) contracts, based on experience with current 5-building contract, to improve energy efficiency of campus buildings. **
  4.4. Replace high-carbon coal and fuel oil in the steam plant with lower-carbon natural gas and biomass fuels. **
  4.5. Develop demand-side energy efficiency and load management programs on campus and in VTES municipal service area. *
  4.6. Develop plan for future VTES electricity that includes on-campus and VTES municipal service area demand-side management, smart grid infrastructure, and distributed sources. *
  4.7. Implement Policy 5505: Campus Energy, Water and Waste Reduction. *

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

- STARS Credits: Planning, Administration, and Engagement (PAE)
    o PAE-1 Sustainability Coordination
    o PAE-3 Physical Campus Plan
    o PAE-4 Sustainability Plan
    o PAE-5 Climate Plan
- VT-Unique GOS:
    5.1. Campus-wide student internship and undergraduate research program. *
    5.2. Maintain University Sustainability Website. *

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

- STARS credits:
    o OP-1 Building Operations and Maintenance:
    o OP-2 Building Design and Construction:
    o OP-3 Indoor Air Quality:
- VT-Unique GOS:
    6.1. Implement LEED Silver or better certification for new buildings and major renovations. *
    6.2. Conduct pilot program for pursuing LEED for Existing Buildings certification for one or more buildings. **

7. **Virginia Tech will improve electricity and heating efficiency of campus facilities and their operations by:**
    a. **Exceeding the most current version of ASHRAE 90.1 energy performance by 10% for all new buildings and major renovations. Capital budgets should account for future**

energy price, life cycle cost of building operation, and environmental benefits of achieving this level of performance;

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

- STARS credits:
  - OP-1 Building Operations and Maintenance:
  - OP-2 Building Design and Construction:
  - OP-3 Indoor Air Quality:
  - OP-22 Water Consumption:
  - Tier 2-44 to 46 Waterless urinals, Water metering, Non-potable water use
- VT Unique GOS:
  7.1. Explore means to integrate life-cycle economic and environmental operating costs in capital budgets. *
  7.2. In addition to LEED certification, evaluate energy performance of new buildings and major renovations to exceed ASHRAE 90.1 energy performance standard by 10% or more. *
  7.3. Improve water-use efficiency of new and existing buildings. *

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

- STARS Credits:
  - Dining Services Waste Tier 2-3,2-7 to 2-12: Trayless dining, Pre-consumer food waste compost, Post-consumer food waste compost, Food donation, Recycled content napkins, Reusable mug discounts, Reusable to-go containers
  - OP-17 Waste Reduction:
  - OP-18 Waste Diversion:
  - OP-19 Construction/Demo. Waste Diversion
  - OP-20 Electronic Waste Recycling
  - OP-21 Hazardous Waste Management
  - Waste Tier 2-38 to 2-43 Materials exchange, Limiting Printing, Materials on-line, Chemical reuse inventory, Move-in waste reduction, Move-out waste reduction
- VT-Unique GOS:
  8.1. Achieve 50% recycle rate by 2020. *
  8.2. Participation and recognition in national Recycle-Mania competition. *
  8.3. Enhance quality and recognition of Dining Services Sustainability waste minimization. *
  8.4. Implement Policy 5505: Campus Energy, Water and Waste Reduction. *
  8.5. Work with the YMCA at Virginia Tech and other groups to complement VT Recycling with move-in/move-out reuse programs like Y-Toss. *

9. **Virginia Tech will:**

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

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

- STARS Credits:
  - OP-10 Computer Purchasing
  - OP-11 Cleaning Products Purchasing
  - OP-12 Office Paper Purchasing
  - OP-13 Vendor Code of Conduct
  - Tier 2-24,25 Historically Underutilized Businesses, Local Businesses
- VT-Unique GOS:
  9.1. Implement Policy 5505: Campus Energy, Water and Waste Reduction. *
  9.2. Make sustainability a priority in the procurement department. *

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

- STARS Credits:
  - Planning, Administration, Engagement (PAE)-1 Sustainability Coordination
  - PAE-13 Staff Professional Development in Sustainability
  - PAE-14 Sustainability in New Employee Orientation
  - PAE-15 Employee Sustainability Educators Program
  - PAE-20 Inter-Campus Coordination on Sustainability
  - PAE-22 Community Service Participation
  - PAE-23 Community Service Hours
  - PAE-24 Sustainability Policy Advocacy
  - Education and Research (ER)-2 Student Sustainability Outreach Campaign
  - ER-3 Sustainability in Student Orientation
- VT-Unique GOS:
  10.1. Develop and implement programs to engage students, faculty and staff in the implementation of the VTCAC and Sustainability Plan. *

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

- STARS Transportation Credits:
  - OP-14 Campus Fleet
  - OP-15: Student Commute Modal Shift
  - OP-16: Employee Commute Modal Shift
  - Tier 2-26 to 2-37 Bike sharing, Bicyclists facilities, Bicycle plan, Mass transit, Condensed work week, Telecommuting, Carpool/vanpool matching, Cash-out of parking, Carpool discount, Local housing, Prohibiting idling, Car sharing
- VT-Unique GOS:
  - 11.1. Continue to promote Alternative Transportation Program to reduce commuting vehicle miles traveled and related emissions. *
  - 11.2. Develop multi-modal transportation facility on campus. **
  - 11.3. Blacksburg Transit should continue replacing old buses with more fuel-efficient buses to reduce their dependency on fossil fuels. *

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

- STARS Education, Research and Outreach Credits
  - ER-1 Student Sustainability Educators
  - ER-2 Student Sustainability Outreach
  - ER-3 Sustainability in New Student Orientation
  - ER-4 Sustainability Material & Publications
  - Tier 2-1 to 2-8 Student group, Organic garden, Model residence room, Themed housing, Sustainable enterprise, Sustainability events, Outdoors program, Themed semester or year
  - ER-5 Sustainability Course Identification
  - ER-6 Sustainability-Focused Courses
  - ER-7 Sustainability-Related Courses
  - ER-8 Sustainability Courses by Department
  - ER-9 Sustainability Learning Outcomes
  - ER-10 Undergraduate Program in Sustainability
  - ER-11 Graduate Program in Sustainability
  - ER-12 Sustainability Immersive Experience
  - ER-13 Sustainability Literacy Assessment
  - ER-14 Incentives for Developing Sustainability Courses
  - ER-15 Sustainability Research Identification
  - ER-16 Faculty Involved in Sustainability Research
  - ER-17 Departments Involved Sustainability Research
  - ER-18 Sustainability Research Incentives

- o PAE-19 Community Sustainability Partnership
- o PAE-21 Sustainability in Continuing Education
- VT-Unique GOS:
  - 12.1. Promote new research in energy efficiency and sustainability. *
  - 12.2. Use undergraduate research, the university campus and the surrounding community as a living laboratory. *
  - 12.3. Continue to develop innovative sustainability related academic courses and programs. *
  - 12.4. Career Services provides information on Green Jobs to career counselors. *
  - 12.5. In community outreach and engagement, continue to work with, surrounding jurisdictions, especially the Town of Blacksburg, and community organizations to promote common interests in advancing sustainability. *

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

- STARS Credits: None Applicable
- VT-Unique GOS:
  - 13.1. Monitor progress in all 14 VTCAC elements and produce an annual report for presentation to the campus community and Board of Visitors. *
  - 13.2. About every five years, re-evaluate the VTCAC and Sustainability Plan and update as needed. **
  - 13.3. Utilize STARS as a sustainability management tool to monitor progress. **
  - 13.4. Accommodate STARS updated versions and submit new data as appropriate. **

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

- STARS Credits: None Applicable
- VT-unique GOS:
  - 14.1. Work to integrate life-cycle costs into both capital and operating budgets, especially for building efficiency and energy systems to better manage long-term costs. **
  - 14.2. Grow annual Green RFP funding to support student-initiated proposals for sustainability-related projects consistent with this Sustainability Plan. **

IV. Looking Ahead: Implementation of 2014 Virginia Tech Sustainability Plan

A. Framework for Implementation: the VTCAC 14 Points

The implementation of the 2014 Virginia Tech Sustainability Plan Update will focus on the VTCAC 14 points and improving progress toward the STARS credits and VT-Unique GOS given for each point. Progress should be reported in the Sustainability Annual Report to the Board of Visitors. Former submittal of STARS reported data should be done on about a three-year cycle and should consider evolving versions of the STARS protocol. The Virginia Tech Climate Action Commitment and Sustainability Plan should be updated on about a five-year cycle.

B. STARS as a Sustainability Management Tool

AASHE STARS protocol has become the national standard for monitoring university progress toward sustainability. The data is used by other organizations rating university sustainability, such as the Princeton Review's "*Guide to Green Colleges*." Using STARS as a management tool for Virginia Tech's sustainability planning and management provides efficiency in monitoring sustainability progress, comparison with other peer institutions, and a more systematic means of tracking compliance and progress toward VT's Climate Action Commitment.

Management of data, participants and progress should be organized by a spreadsheet similar to the Sustainability Progress Report used from 2009-2013. The revised management spreadsheet should be organized by the VTCAC 14 points; list related STARS credits as well as VT-Unique GOS, similar to the format given in section III.D. of this report. This information including graphical representation will form the basis of the Sustainability Annual Report.