

Energy and Sustainability Committee Meeting Minutes
October 29, 2012
2:00 – 3:00 p.m.
Room 325, Burruss Hall

Present: Fred Selby, Kayla Smith (for Sherwood Wilson), Savita Sharma (for Dwight Shelton), John Bush (for Jason Soileau), Denny Cochrane, Anthony Purcell and Rial Tombes (for Frances Keene), Rob Lowe, John Randolph, Nancy McGehee, Becky Saylor, Tom Tucker, Thomas Olson (for Paul Winistorfer), James Dale, Catherine Goggins, and Drew Gallagher.

Absent: Mike Coleman, Bruce Ferguson, Althea Aschmann, Georg Reichard, and Michael Painter.

Guests: Linda Breeding, Angie De Soto, Mark DiFilippo, Alyssa Halle and Jean Smoot.

Call Meeting to Order and Welcome Guests

Chair Fred Selby called the meeting to order and welcomed members and guests. He introduced Rial Tombes, Dining Services' new Sustainability Coordinator to the Committee.

Approval of Agenda

The Committee approved the agenda as proposed.

Approval of Minutes

The Committee approved the minutes from the previous meeting.

Old Business

1. Virginia Tech Climate Action Commitment and Sustainability Plan (VTCAC&SP) Subcommittee Update

a. Subcommittee Progress

In John Beach's absence, Fred Selby provided an update on Subcommittee progress. At present, working groups are in the final stages of individual VTCAC component assessment and revising as appropriate. Of the fourteen components, working groups have proposed no changes for four, minor grammatical changes for two, and minor to moderate content changes for the remainder. The Subcommittee plans to present its final recommendations along with the Virginia Tech sustainability definition to the full Energy and Sustainability Committee at the November 26, 2012 meeting.

b. Governance Process

Denny Cochrane, in close coordination with Kayla Smith from the Office of the Vice President for Administrative Services, presented the actions and timelines required to have the revised VTCAC Resolution reviewed and approved (see "E&SC 102912 Attachment 1 – Revised VTCAC Approval – Proposed Timeline.docx"). Once the full Energy and Sustainability Committee has completed its review, the revised VTCAC Resolution will be presented to the Vice President for Administration Services, who will then work directly with the University Counsel to determine if the

revised VTCAC Resolution can be approved solely by the Energy and Sustainability Committee at a regularly scheduled meeting, or if it will have to go through the University governance review process and receive final approval from the Virginia Tech Board of Visitors. The original VTCAC Resolution underwent the University governance review process and was approved by the Virginia Tech Board of Visitors on June 1, 2009. Denny reviewed the actions and timelines required to have this process completed during the 2013 spring semester in the event approval from the Board of Visitors is required.

2. OES Student Intern Program Update

The OES SPOT (Sustainability Professionals of Today) Internship Program has been making steady progress and each of the project teams is on track to complete their fall work products. The students will be presenting on these in early December and information about these presentations will be sent out to the Committee. The SPOT program received national attention at the annual AASHE conference recently when Angie De Soto, SPOT program director, and colleagues from three other universities facilitated an advanced track workshop on designing and improving internship programs. Lastly, an exciting partnership has been formed with the Sustainable Endowments Institute (SEI) around the Funding Intern Team's funding mechanisms "menu" work product. SEI will provide staff support to the students to ensure all options are included in the menu and then will assist in distributing it nationally as a new resource for the higher education community. Virginia Tech will be the first campus to be able to use this new campus sustainability funding tool. SEI is an advantageous partner because they facilitate the Billion Dollar Green Challenge and are recognized as the national experts on revolving loan fund development in higher education.

3. 2012-2013 Request for Proposal for Student Organization Sustainability Initiatives (Green RFP) Status Update

Denny Cochrane announced that the Office of Energy and Sustainability has received 20 Green RFP proposals this year. The University review process will be conducted in a similar manner as last year and is on an accelerated timeline. Denny has requested assistance from a number of units across campus to help conduct feasibility and cost reviews for each proposal (see E&SC 102912 Attachment 2 – Green RFP Proposal Scorecard for 2012-2013.xlsx). The Energy and Sustainability Committee's Green RFP Subcommittee will then conduct a review of all proposals and will prepare an initial prioritization. Subcommittee members include Denny Cochrane (Chair), Nancy McGhee (faculty), Rob Lowe (staff) and James Dale (student). Once their review and initial prioritization have been completed, the results will be presented to the Associate Vice President for Facilities Services and Chief Facilities Officer and subsequently to the Vice President for Administrative Services for review and comments. Once their recommendations have been incorporated, the Green RFP Subcommittee will finalize the documentation for presentation to the full Energy and Sustainability Committee for action. To meet the Office of Budget and Financial Planning's deadline, Denny anticipates having to have the full Committee vote electronically on proposal prioritization. At the conclusion of this process Denny will assemble all appropriate documentation for presentation to the Office of Budget and Financial Planning. The goal

is to have all of this completed by November 16, 2012, however an extension should be obtainable if necessary.

New Business

4. Perry Street Parking Garage Solar PV Update

Fred Selby presented an update on the Perry Street Parking Garage Solar PV Array (see “E&SC 102912 Attachment 3 “Solar PV Update.pptx”) which included a technical and project overview, and recent solar array performance. The technical overview included information about the solar panels, support structure and electrical specifications; the project overview covered project management, financials, and timeline. Charts were included that demonstrated the array was performing electrically as designed, supplying 42% of the Perry Street Parking Garage electrical needs over the period July, 2012 through September, 2012. The array generated an average 433 kWh/day over the same period.

5. Proposed Committee Spring Focus

Fred Selby presented a brief overview of the original Sustainability Plan Mid-Term Actions (see “E&SC 102912 Attachment 4 - Sustainability Plan Mid-Term Actions Status Review.pptx”). He then stated that with their updating of the VTCAC Resolution fourteen components, the current VTCAC&SP Subcommittee had prepared the full Committee to take the updating of the Sustainability Plan to the next level. He proposed that as a spring 2013 focus, the Committee evaluate and update Sustainability Plan action items. Individual subcommittees, led from within the full Committee membership would be established (one per Sustainability Plan category) and subcommittee members recruited both from within and outside of the Energy and Sustainability Committee as necessary. Proposed deliverables would include:

- An evaluation of outstanding original Immediate Term (2009-2012) actions for viability and disposition
- An updated/new 3-year short term (2013-2015) action list
- An updated/new longer-term (2016-2025) action list

Subcommittees would update the full Committee periodically at monthly meetings and would target to present a final action list by the scheduled April 29, 2013 meeting. The proposal was accepted by the Committee and will be discussed in more detail at the November 26, 2012 meeting.

6. Open Discussion

No items were raised for open discussion.

Future Meetings

Dates: The remaining scheduled meeting dates for Academic Year 2012-2013 are as follows:

- November 26, 2012

- January 28, 2013
- February 25, 2013
- March 18, 2013 (Moved up one week due to scheduled BOV meeting on March 25)
- April 29, 2013

Times and Location: All meetings will be held from 2:00 p.m. to 3:00 p.m. in 325 Burruss Hall unless noted above.

Adjourn

The meeting was adjourned.

**PROPOSED TIMELINE OF THE APPROVAL PROCESS FOR THE
REVISED VTCAC RESOLUTION**

<u>DATE</u>	<u>ACTION</u>	<u>RESPONSIBLE PARTY</u>
On-going	Review/Revise VTCAC	Energy & Sustainability Sub-Committee
Jan 28, 2013	Present Revised VTCAC to Energy & Sustainability Committee	Energy & Sustainability Sub-Committee
Feb/Mar 2013	First & Second Readings at Commission on University Support	Energy & Sustainability Committee
April 2013	First & Second Readings at University Council	Commission on University Support
May 2013	Materials prepared for Virginia Tech Board of Visitors	Vice President for Administrative Services
Jun 2-3, 2013	Virginia Tech Board of Visitors Meeting	President's Office

Perry Street Parking Garage Solar PV Array Update



Energy & Sustainability Committee
April 30, 2012



VirginiaTech
Invent the Future

Technical Overview

- Solar Panels
 - Total number of panels: 440
 - Manufacturer: Sharp Electronics Corp.
 - Type: Monocrystalline silicon (60 per panel)
 - Max Rating: 60 VDC, 235 watt per panel
 - Single Panel Dimensions: 39.1" x 64.6" x 1.8"
 - Panels warranted for 25 years



Technical Overview

- Support Structure
 - Five rows of panels mounted to a steel beam lattice base
 - Panels oriented at a tilt of $\sim 35^\circ$ from horizontal
 - Mounting structure faces Southwest
 - Measures 121' - 8" x 131' - 0", or $\sim 16,000$ ft.²
 - Maximum vehicle height limit of 8.5' maintained



Technical Overview

- Electrical Output
 - Combined nominal power capacity of $103.4 \text{ kW}_{\text{peak dc}}$ and est. annual energy output of 122,431 kWh
 - Inverter converts 315 to 600 VDC input to 480 VAC, 3 phase output at peak capacity of $82.7 \text{ kW}_{\text{peak AC ave.}}$
 - Connected to utility grid
 - Will supply ~13% of parking deck annual energy requirement



Project Overview

- Project Financials

- Total project cost: ~\$1.261 million

- Mobilization \$23k
- Engineering (design) \$121k
- Structural steel \$238k
- Steel erection \$67k
- Solar Panels \$426k
- Panel erection \$228k
- AC/DC Electrical \$144k
- Commissioning \$9k

- Project was funded entirely through a federal grant received by the Commonwealth from the American Recovery and Reinvestment Act (2009)

- Project Management

- Architectural Designer: Wiley|Wilson
- General Contractor: Siemens Industry, Inc.
- VT Project Manager: David Chinn

Project Overview

- Project Timeline
 - 6/08: VT BOV approves funding for parking structure
 - 1/10: Governor Tim Kaine approves Decision Brief to fund VT Solar PV as an Energy PPEA (Public-Private Education Facilities and Infrastructure Act) project

Decision Brief PPEA Energy Program Appropriation and Project Approval

Request: DGS requests authorization of projects and appropriation of ARRA stimulus funds being administered by the Department of Mines Minerals and Energy so that Comprehensive Agreements and corresponding design-build agreements for these projects may be executed.

Background: The Comprehensive Agreements for the Energy PPEA have been negotiated and are nearing execution. The first projects designated to begin are a series of green energy projects that have been designated to be funded from ARRA funds being administered by the Department of Mines Minerals and Energy. These projects are generally described as

Solar Photovoltaics projects at various DGS building for \$4,532,000
Various solar projects at VCU for \$3,098,000
Biomass project at VCCW for \$943,000
Wind project at a DOC facility for up to \$2,377,000
Solar Photovoltaics at the new Virginia Tech Parking facility for \$1,300,000
Various Green Energy projects at DGIF hatcheries for \$750,000

It is requested that the Governor under authority granted by the appropriations act to expedite projects to be performed when the General Assembly is not in session, approve these as capital projects and appropriate the funds so that the contract can be executed.

Richard F. Sliwoski
Richard F. Sliwoski, PE, DGS Director
Date Jan 5, 2010

CONCURRENCE

Secretary of Administration:
Recommend
Recommend w/ Modification
Deny
Viola O. Baskerville
Viola O. Baskerville
Date 1/05/10

Secretary of Finance:
Recommend
Recommend w/ Modification
Deny
Ric Brown
Ric Brown
Date 1/6/10

Chief of Staff:
Recommend
Recommend w/ Modification
Deny
Wayne M. Turnage
Wayne M. Turnage
Date 1/8/10

APPROVAL

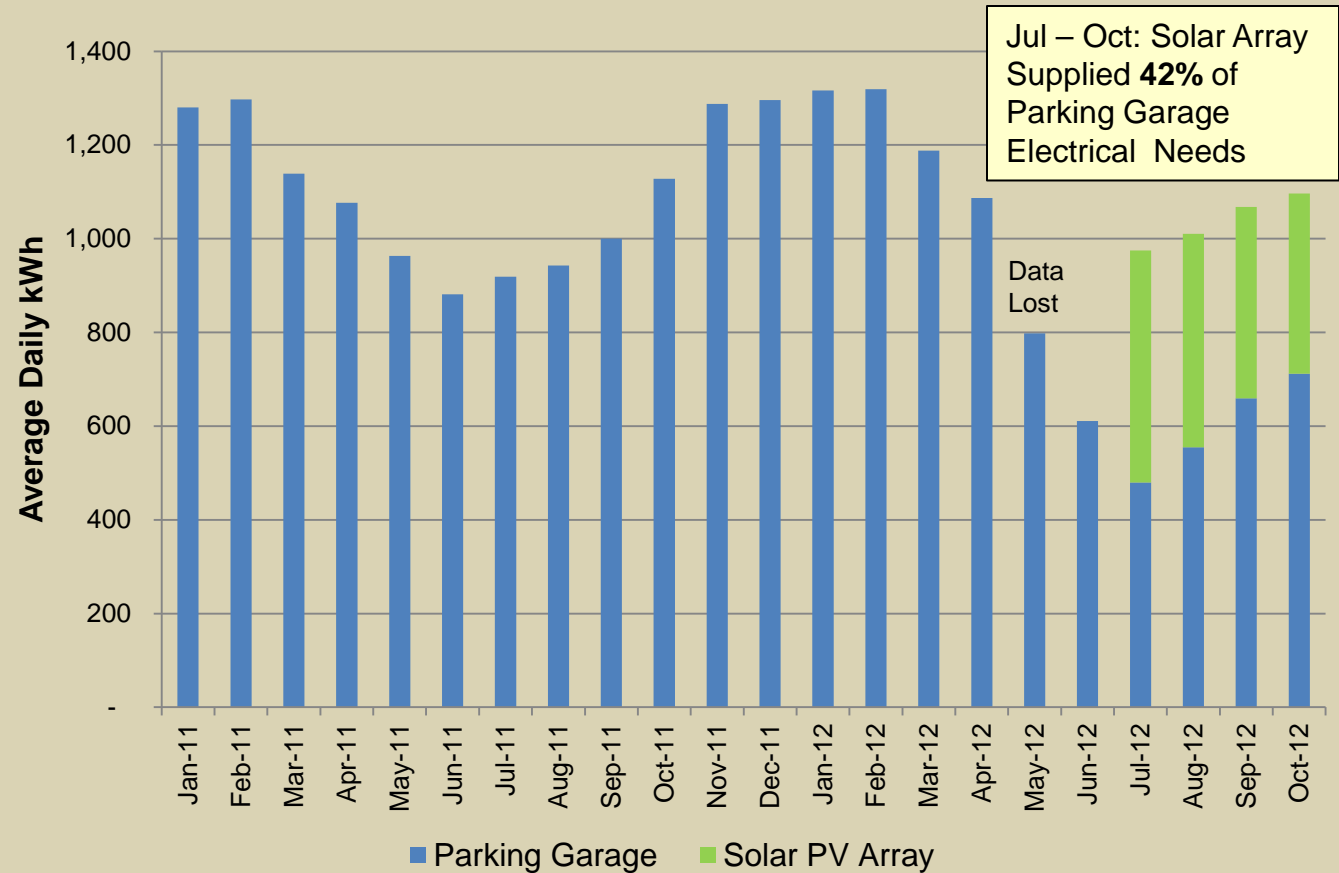
Approve Approve w/ Modification Deny
Governor: *Timothy M. Kaine*
Timothy M. Kaine
Date 1/8/10

Project Overview

- Project Timeline (Cont.)
 - 8/10: Parking Garage opens with first 800 spaces
 - 9/10: Parking Garage completed with 1,300 spaces
 - 12/10: Virginia Department of Historic Resources approves Solar PV Environmental Impact Report
 - 3/11: VT Board of Visitors approves Solar PV plans
 - 8/11: Siemens given approval to proceed
 - 12/11: Construction begins
 - 4/12: Construction complete; commissioning phase begins

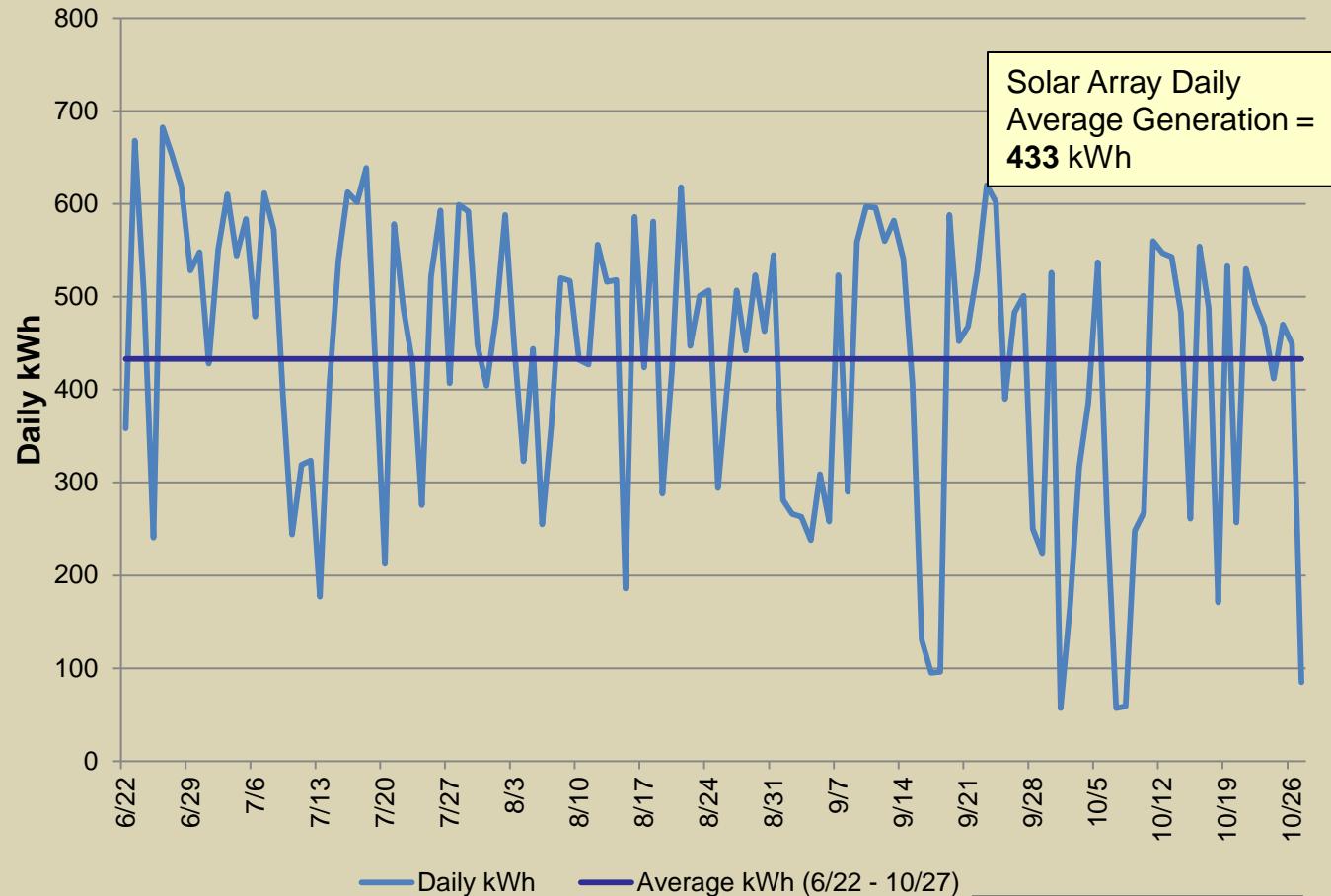
Solar Array Performance

- Monthly kWh Profile (Jan-11 To-Date)



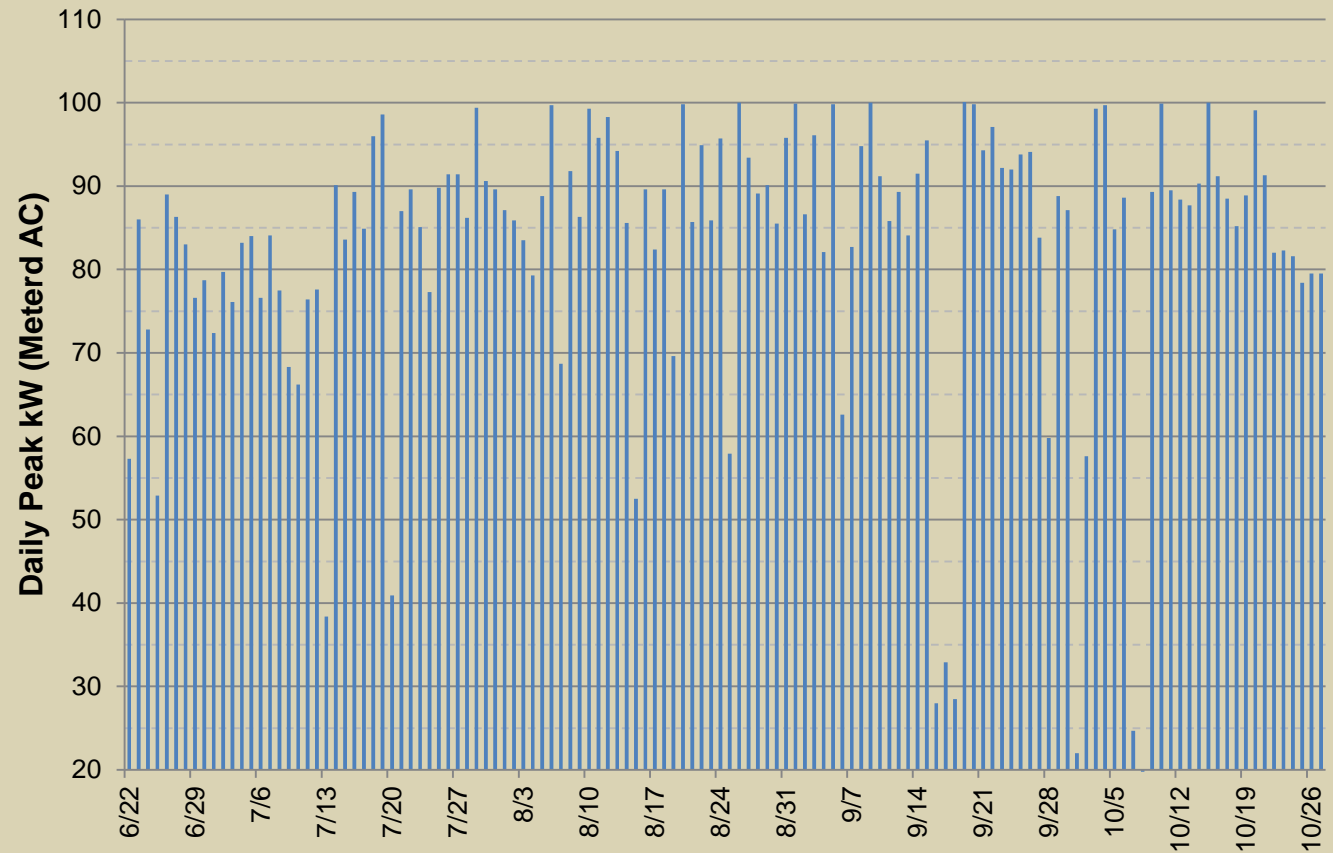
Solar Array Performance

- Daily kWh Generation (6/22 To-Date)



Solar Array Performance

- Daily Peak kW (AC) Output (6/22 To-Date)





Questions?

Administrative Structure and Governance

- *No mid-term actions identified*

Facilities Infrastructure

Central Steam Plant and Steam Distribution System

1. Identify further upgrades of existing system, including co-firing biomass with coal to reduce costs, energy and emissions
2. Plan for next generation of University Steam and Distribution System (plan to replace current boilers and generators with new power plant system)

VTES

1. Develop distributed green electricity plan on campus (and "smart grid" improvements to accommodate on-site generation)

Chiller System

- *No mid-term actions identified*

Facilities Infrastructure (Cont.)

New and Renovated Buildings

1. Adopt Architecture 2030 interim goals for energy use reductions in new buildings relative to ASHRAE 90.1-2004 standards: 50% by 2016 and 75% by 2022.

Existing Buildings

1. Develop procedures to integrate life-cycle costing, energy efficiency, water efficiency, and other sustainability factors in all campus projects funding from maintenance reserve and operating funds.

Campus Planning, Landscape and Grounds

1. Plant 100-200 2”+ caliper trees per year to increase tree canopy land cover by 2% per year to maximize canopy cover by 2025 as we meet other campus land needs.

Facilities Operations

Thermostat Settings, Air Handling and Chiller System Operation

- *No mid-term actions identified*

Facilities Operations (Cont.)

Recycling

1. Reduce waste generated per student/employee and increase recycle rate to 50% by 2025 (expand and optimize program and increase participation)

Smart Procurement

- *No mid-term actions identified*

Transportation and Parking

1. Institute Bike Share Pilot Program with 30 bikes; Institute Bike Share Program on Campus, based on Pilot Program
2. Place high fuel efficiency and/or electric vehicle rental service on campus for cross-campus trips. Assuming 10 vehicles for pilot project, then establish program based on pilot
3. Institute a “no freshman car rule” at VT allowing for exceptions based upon special circumstances
4. Offer parking permit price discount for vehicles with a MPG rating of 35 or higher to promote higher efficiency and hybrid vehicles

Behavior & Campus Life

Student Culture & Engagement

1. Incorporate programmatic aspect of a campus sustainability into Hokie Camp
2. Develop a culture around sustainable living on campus

Faculty & Staff Engagement

1. Host competitions between buildings on electricity, heat, and water use

Housing Services and Residence Life

1. Energy Star® requirement for all on-campus appliances used by students or staff
2. Develop and implement a Sustainability Advisors Program for the residence halls
3. Host sustainability competitions between halls

Dining Services

1. Develop a student run farm that uses composted matter and grows food for Facilities
2. Complete energy efficient lighting upgrades
3. Create a policy on energy efficient equipment replacements

Behavior & Campus Life (Cont.)

University Unions and Student Activities

- *No mid-term actions identified*

The Inn at Virginia Tech and Skelton Conference Center

1. Implement the efficiency and conservation plan, maintain membership with the Virginia Green Lodging program, and consider joining the “Green” Hotels Assn.

Athletics

1. Assess waste generation after implementation of recycling program and develop a waste reduction strategy

Academic Programs

Instruction and Learning

1. Implement recommendations from benchmark-inventory study (Benchmark peer institutions and inventory VT undergraduate and graduate degree, minor, and certificate programs to identify gaps and opportunities to enhance offerings available to students)

Research and Discovery

1. Implement recommendations from benchmark-inventory study (Benchmark peer institutions and inventory VT sustainability-related research expertise, centers, and institutes to identify gaps and opportunities to enhance sustainability research funding)

Outreach and Engagement

- *No mid-term actions identified*

E&SC Spring Focus Proposal – Sustainability Plan Action Update

- Spring semester focus
- Establish individual subcommittees (one per SP category) and leaders from within E&SC membership
- Recruit subcommittee members outside of the E&SC as necessary
- Subcommittee deliverables:
 - Evaluate current outstanding original Immediate Term (2009-2012) actions for viability
 - Updated/new 3-Year short term (2013-2015) action list
 - Updated/new longer-term (2016-2025) action list
- Subcommittees update E&SC periodically at monthly meetings and present final action list by April 29 meeting