

Energy and Sustainability Committee Meeting Minutes

March 28, 2022

2:00pm

Zoom: <https://virginiatech.zoom.us/j/87262233867?from=addon>

Present: Mary-Ann Ibeziako (presiding), Ken Miller, Rosalba Ledezma for Liza Morris, John Randolph (Interim), Alan Grant, Rob Lowe, Matt Hagy, Blake Bensman, Elena Spinei Lind, Todd Shenk, Matthew Eick, Dana Hawley, LaTawnya Burleson, Lucas Goodman

Absent: Chris Kiwus, Jamie Stein, Abigail Belvin, Vineela Eppe

Guests: Wendy Halsey, Jamie Lau, Jeri Baker, Nick Quint, Steve Durfee, Simona Fried, Lowell Jesse, Eli Meyer, Scott Kerklo, Nathan King, Emily Vollmer, Kristina Cook, Autumn Timpano, S.B. Chandler, Jamie McElfresh, Sean McGinnis, Matt Earnest, Aushim Mittal, Michael Bell, Jack Leff

Mary-Ann Ibeziako called the meeting to order at 2:00 pm. A quorum was present.

1. Adoption of Agenda

A motion was made and seconded to adopt the agenda. The motion carried.

2. Approval of or Announcement of approval and posting of minutes of February 28, 2022

Mary-Ann Ibeziako noted that these minutes have been voted on electronically and can be publicly accessed on the Governance Information System on the Web (<http://www.governance.vt.edu>).

3. Presentation

Mary-Ann Ibeziako (Chair, AVP Infrastructure & Sustainability & Chief Sustainability Officer), John Randolph (Interim Climate Action, Sustainability, and Energy Director), Nathan King (Campus Sustainability Manager), Emily Vollmer (Sustainability Coordinator), Michael Bell (Graduate Assistant, Office of Sustainability), and Kristina Cook (Program Coordinator) gave a presentation that covered all agenda items including old and new business sections for the committee (attached).

4. Open Discussion

The group was given time to discuss and ask questions about each section of the presentation. There was no dialog from the group this time. Kristina let everyone know that the next meeting, on April 25th, 2022 at 2:00pm, is the last meeting of the E&SC for this academic year.

5. Adjournment

There being no further business, a motion was made to adjourn the meeting at 2:34 pm.



Energy & Sustainability Committee
March 28, 2022 – 2:00pm



Agenda

- Welcome and Opening Remarks
- Approval of Proposed Agenda (if a quorum is present)
- Meeting Minutes: Electronic Vote Results
- Old Business
 - CAC Implementation Update
 - CAC Task Forces Update
 - Earth Week 2022
 - Green RFP Update
- New Business
 - History of the Green RFP
- Open Discussion

CAC Implementation Update



Climate Action Commitment Implementation Update



Projects, programs, studies: lots of things happening but much more to be done

- Goal 1: **Campus GHG inventory** under CAC scope (multi-student IS project) (11/21)
- **Goal 2: Solar development:** 2 MW on 7 building rooftops (contract signed 2/8/22)
Kick-off meeting with contractor SunTribe 2/21/22
- Goal 3: **Steam/power plant:** boiler #12, upgraded power generator (in commissioning)
Chiller Phase 2 upgrade (in commissioning)
Back-up steam plant fuel study to eliminate coal: kick-off meeting 2/17/22 (no coal use since 2019)
- Goal 4: **Lighting audit complete, LED lighting and retro-commissioning projects:**
EAP6 \$6M APPROVED; Smart Lab Program under development (OEM, EHS)
- **Goal 5: LEED Gold:** Student Athletic Performance Center (10/21);
Sustainability design criteria for new buildings: Student Life Village TAG, Mitchell Hall
- **Goal 6/7: Zero Waste Campus consultant** study (2/22: 5 proposals from RFP); Waste Manager search
- Goal 9: **EV charging stations** on campus (12/21)
Multi-modal Facility under construction; **Blacksburg Transit** partnership: electric buses
- Goal 10: **Faculty retreat** with 50 attendees (9/21), Faculty CALL Miro meeting (2/25/22)
100+ core faculty for Climate Action Living Laboratory (CALL)
- Goal 11/13: **Climate Justice Task Force** of Energy & Sustainability Committee (one of 12 E&SC TF)
- **Goals 12/13: Student Engagement** programs of Office of Sustainability (Sustainability Internships; Green RFP (\$240K FY22 projects); Student Sustainability Forum; Green certification programs)
CAC Roadshow: meetings with campus leaders to promote university-wide engagement in CAC

Climate Action Commitment Implementation Update

Energy Action Plan 6: Overview: \$6.277 million Approved 3/23



Categorized Implementation Measure	Asset/Building	Estimated One-time Cost	Estimated Annual Savings	Simple Payback, Yr
Building Automation Systems Optimization	18 E&G Buildings	\$ 1,070,700	\$ 298,442	3.6
LED Lighting Overhaul (E&G)	E&G Building Group 1	\$ 1,074,491	\$ 141,916	7.6
LED Lighting Overhaul (Aux)	Auxiliary Building Group 1	\$ 1,131,911	\$ 157,019	7.2
Other CAC Projects & Programs	Various	\$ 1,466,000	\$ 71,595	20.4
Retro-Commissioning (E&G)	Select E&G Buildings	\$ 487,000	\$ 162,700	3.0
Retro-Commissioning (Aux)	Select Auxiliary Buildings	\$ 296,000	\$ 98,300	3.3
Chilled Water System Optimization and Piping Projects	Campus	\$ 751,000	\$ 59,500	12.6
TOTAL		\$ 6,277,102	\$ 989,472	6.3

Climate Action Commitment Implementation Update

Energy Action Plan 6: CAC Projects & Programs Approved 3/23



Other CAC Projects & Programs	Asset/Building	Estimated One-time Cost	Estimated Annual Savings	Simple Payback, Yr
Campus-Wide Lighting Audit	Lighting Controls	\$ 100,000	-	-
Energy & Water Metering	Various Buildings	\$ 500,000	-	-
Green Request for Proposals FY22&23	Campus	\$ 400,000	\$ 20,000	20.0
Lab Ventilation Energy Optimization	Steger	\$ 250,000	\$ 45,000	5.5
Variable Frequency Drives (VFDs) on Constant Volume Fans	Various Buildings	\$ 50,000	\$ 6,345	7.9
Lighting Maintenance Program	Staff Training and Repairs	\$ 160,000	-	-
Replacement Heater Unit	Mining & Minerals Engineering Bldg	\$ 6,000	\$ 250	24.0
TOTAL		\$ 1,466,000	\$ 71,595	20.4

Climate Action Commitment Implementation Update

Solar Development toward Goal 2: 100% Renewable Electricity by 2030

Proposed Pathways

- 2020: Purchased RECs for 30% Renewable
- **2022: 2.35 MW solar on campus**
- 2027: 12.65 MW solar on VT lands
- 2029: 85-100 MW in region through 3rd party PPA
- 2030: 100% renewable electricity including solar production, utility provider portfolio, RECs



We are currently constrained by AEP/APCO contract from adding more than 2.35 MW on campus. Contract expires in 2027.

Climate Action Commitment Implementation Update

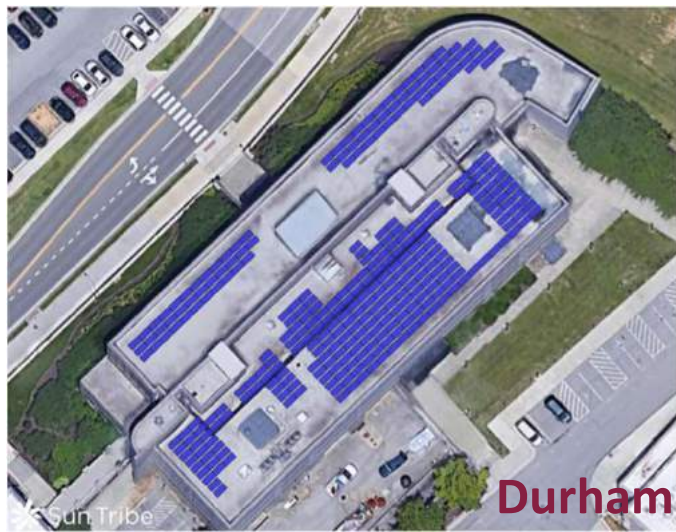


Founded by 3 Hokie Alums

2.1 MW on 7 building rooftops

Power purchase agreement (PPA) for 6 years with plan for VT to acquire systems for remaining 20-30 year life.

SITE NAME	SIZE
Durham Hall	142.9 kW DC
Dietrick Hall	276.6 kW DC
Hahn Hurst Basketball Practice Center	280.3 kW DC
McComas Hall	281.2 kW DC
Vet Med	312.1 kW DC
VT Electric Service	330.3 kW DC
Sterrett Facility Complex	484.6 kW DC



Durham



Dietrick



Hahn-Hurst



McComas



Vet-Med



VTES



Sterrett

Climate Action Commitment Implementation Update

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Climate Action Commitment Implementation

Going Beyond CPIF: Engaging the Entire University (CAC goals 4, 5, 6, 7, 9, 10, 11, 12, 13, 14)

CAC Roadshow: meetings with campus leaders, faculty, commissions, groups to promote university-wide engagement in CAC implementation:

- Faculty Retreat (9/17/21)
- Senior Vice President-Chief Business Officer leadership (11/1/21)
- Division of Student Affairs leadership (2/23/22)
- Faculty Climate & Sustainability Education meeting (2/25/22); (4/1/22)
- VP for Equity and Accessibility (3/2/22)
- Enterprise Administrative & Business Services leadership (3/24/22)
- Undergraduate Student Senate (3/29/22); Graduate Student Senate (4/14/22)
- University Council (5/2/22)
- CPIF Operations (5/16); CPIF Campus Planning & Capital Finance (5/18)
- Others: Faculty and Staff Senates, President's Cabinet/Council, Provost leadership, Athletics, Advancement, VT Foundation



CAC Task Forces Update

CAC Implementation Task Forces

- E&SC Name Change, Charge, Changes to Membership
 - Nathan King (Convener), Todd Schenk, Rosalba Ledezma, Jack Leff, Matt Earnest
- Lessons Learned from CAC Working Group Subcommittees
 - John Randolph (Convener), Jon Clark Teglas, Scott Kerklo
- CAC Goal Task Forces
 - GHG Inventory
 - Simona Fried (Convener), Sean McGinnis, Steve Durfee, Matt Hagy, Rob Lowe, Eli Meyer
 - Climate and Sustainability Education and Research (CSER)
 - John Randolph (Convener), Mary-Ann Ibeziako, Todd Schenk, Jack Leff
 - Climate Justice
 - Jack Leff (Convener), Emily Satterwhite, Shannon Bell
 - Sustainable Campus Culture, Engagement, and Sustainable Choices
 - Jack Leff (Convener), Blake Bensman, Todd Schenk, Simona Fried, Gillian Eastwood

*Task Forces are meeting this month and will present highlights of their draft work plan at the April 25th E&SC meeting

CAC Task Forces Update

- CAC Goal Task Forces (continued)
 - Town-Gown Sustainability
 - [John Randolph \(Convener\)](#), [Wendy Halsey](#), [Emily Vollmer](#), [Carol Davis](#), [Ann Raridon](#)
 - Sustainable Procurement
 - [Reed Nagel \(proposed convener\)](#), [Blake Bensman](#), IT participant to be identified
 - Carbon-Neutral Commuting and Carbon-Neutral Fleet
 - [Nick Quint \(Convener\)](#), [Mike Dunn](#), [Durelle Scott](#), [Erik Olsen](#) (invitation extended)
 - Carbon Offset and Management
 - [Sean McGinnis \(Convener\)](#), [John Randolph](#), [Mary-Ann Ibeziako](#), [Billy Dudding](#), [Rob Lowe](#), [Eli Meyer](#)
- Review and Revision of Policy 5505
 - [Nathan King \(Convener\)](#), [Todd Schenk](#), [Jack Leff](#)
- Sustainability Awards
 - [Emily Vollmer \(Convener\)](#), [LaTawnya Burleson](#), [Kristina Cook](#)

Earth Week 2022

Collaboratively planned week of events

- Celebrate progress
- Educate others
- Engage peers and community

Earth Week Planning Forums

- Working in collaboration with:
 - 20+ student groups
 - 15 campus units/depts
 - 7 community groups
- 24 events confirmed
- 21 events tentatively planned

April 17-23

- **Sunday** – Consumerism/Reduce and Reuse
- **Monday** – Alternative Transportation and Energy
- **Tuesday** – Environmental Justice
- **Wednesday** – Community and Service
- **Thursday** – Habitats and Biodiversity
- **Friday** – Art and Wellness
- **Saturday** – Beyond Earth Day

April 2022						
S	M	T	W	T	F	S
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30



2021-2022 Green RFP Update

<u>DATE</u>	<u>ACTIVITY</u>
Sep 20	Green RFP 2021-22 announcement
Nov 19	Proposal deadline to CASE office
Dec 1	CASE office coordinates review with subject matter experts
Jan 24	E&SC Subcommittee to review & prioritize proposals
Feb 28	Subcommittee presents recommendations to <u>E&SC for approval</u>
Mar 4	E&SC presents proposals to the Office of Budget & Financial Planning
Mar/Apr	OBFP Budget Review Committee- identifies funding sources
Apr/May	Select proposals approved - implementation initiated

2021-2022 Green RFP Update

- Mary-Ann, Nathan, and Jim Hillman met with OBFP Budget Review Committee on March 24
- Of the 15 proposals that the E&SC approved, 12-14 will receive funding.
- Coca-Cola Company may fund 5-6 proposals.
- OBFP will release an official memo announcing the projects that were funded in May/June (estimate).
- Once the announcement has been made, we will inform the student groups that their proposals were funded and begin implementation at the start of the fiscal year.
- Previous years implementation update:
 - Complete = 8
 - In progress = 19
 - Not started = 6



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Open Discussion

- CAC Implementation Update
- CAC Task Forces
- Earth Week 2022
- Green RFP Update
- History of the Green RFP

Next Meeting:

**April 25, 2022
2:00 p.m. via Zoom**



Green RFP History



Background on Green RFP Program

- Started by students as a way to make Virginia Tech more Sustainable
- First projects funded in 2011-2012 Academic Year
- To Date 116 projects funded
- Over \$1.5 Million allocated to various Green RFP projects
- Six Projects Highlighted

Stroubles Creek Riparian Restoration

- 12 Mile Impaired Waterway
- Restoration Measures Include:
 - Replanting native species
 - Preventing livestock from enter the waterway
 - Reducing stream bank erosion
 - Planting Rain gardens

RESTORING STROUBLES CREEK

What is wrong with Stroubles Creek?
Stroubles Creek is considered "impaired" by the Virginia Department of Environmental Quality because it does not support a diverse community of aquatic insects and fish. The main pollutants are sediment and bacteria.

What is being done to help Stroubles Creek?
The Center for Watershed Studies in the Biological Systems Engineering Department at Virginia Tech, with assistance from Virginia Tech Facilities, the town of Blacksburg, and local citizens, developed a plan which identified the sources of sediment to Stroubles Creek and actions that could be taken to improve stream health. Virginia Tech and the town of Blacksburg are installing new "rain gardens" throughout campus and the town to allow stormwater to soak into the ground and to remove pollutants. The Center for Watershed Studies is working with the Virginia Tech Foundation to fence cattle away from the stream, to reduce stream bank erosion, and to reestablish native forest vegetation along the stream channel.

Stroubles Stream Restoration
Collapsing stream banks along Stroubles Creek were identified as a major source of sediment to the stream. With funding provided by the Virginia Department of Conservation and Recreation from the Virginia Water Quality Improvement Fund, faculty from the Center for Watershed Studies in Biological Systems Engineering are investigating techniques for restoring degraded streams.

Why should livestock not be in the stream?
In addition to defecating in and adjacent to the stream, livestock, such as cattle and horses, cause physical damage to the stream channel. They eat the vegetation growing on the banks, exposing the soil to erosion. These large animals also trample the stream banks, increasing soil erosion.

What happens when it rains?
Most rain, sleet, snow and hail that falls in a storm is slowly absorbed into the ground. When plants and trees are replaced with concrete and asphalt for roads, buildings, parking lots and other development, fewer natural areas are available where stormwater can soak into the ground, in creeks and rivers. If the water is not absorbed naturally, it will travel over concrete and asphalt, and it reaches streams directly or through storm drains which empty into streams, lakes and rivers.

What is polluting our streams?
Historically, factories were the main polluters of streams and rivers. National laws were enacted to prevent water contamination from factories, so this is no longer the major cause of water body runoff and rivers. So what contributes to pollution of our streams and rivers? The answer is polluted runoff. Runoff is rain, sleet, snow and hail that can't soak into the ground, where it can be captured with roads, parking lots, yards, and sidewalks. As runoff travels over these surfaces, it picks up pollutants such as pet litter, trash, motor oil, paint and antifreeze. This polluted runoff quickly finds its way into our local streams and the New River, which directly and through storm drains. All this polluted runoff results in unhealthy streams and rivers.

What can you do to protect local streams?
Every person can make a difference in protecting and improving the health of our local streams. By following these simple steps and working together, we can have clean streams for our families and children to enjoy. Each one of us in the town of Blacksburg should go home and do a stream check to see if we are doing our part to protect our streams.

- Fix oil and fluid leaks on your car.
- Dispose of used motor oil at recycling centers.
- Put litter in trash cans.
- Pick up pet waste and dispose of it in trash cans or in a trash can.
- Follow yard rules and dispose of lawn care products and other chemicals.
- Keep livestock out of streams or fence their access to a limited area that is protected against erosion.

A collaborative effort between the Virginia Department of Conservation and Recreation, Virginia Tech Biological Systems Engineering Department and the Center for Watershed Studies.

Virginia Tech | Biological Systems Engineering | CENTER for WATERSHED STUDIES | Wetland | DCR

Additional support from Environmental Services & Consulting, LLC, and RSM Ecosystems, LLC.

Water Bottle Refill Stations

- Present since first proposals
- Over 100 systems installed throughout campus
- Estimated 1.5 tons of plastic diverted annually
- University Building Code





Bike Racks

- Surfaced almost every year of the program
- Bike rack now required for all new buildings
- Promotes alternative transportation use
- Reduction of Single Occupancy Vehicles





FS/G
FACULTY
STAFF
& GRADUATE
Permit Required
7-10 AM-5 PM
Monday-Friday



EV Charging Stations

- Emerged through several years of planning and research by students
- 4 charging spots installed in Squires lot
- CAC benefits



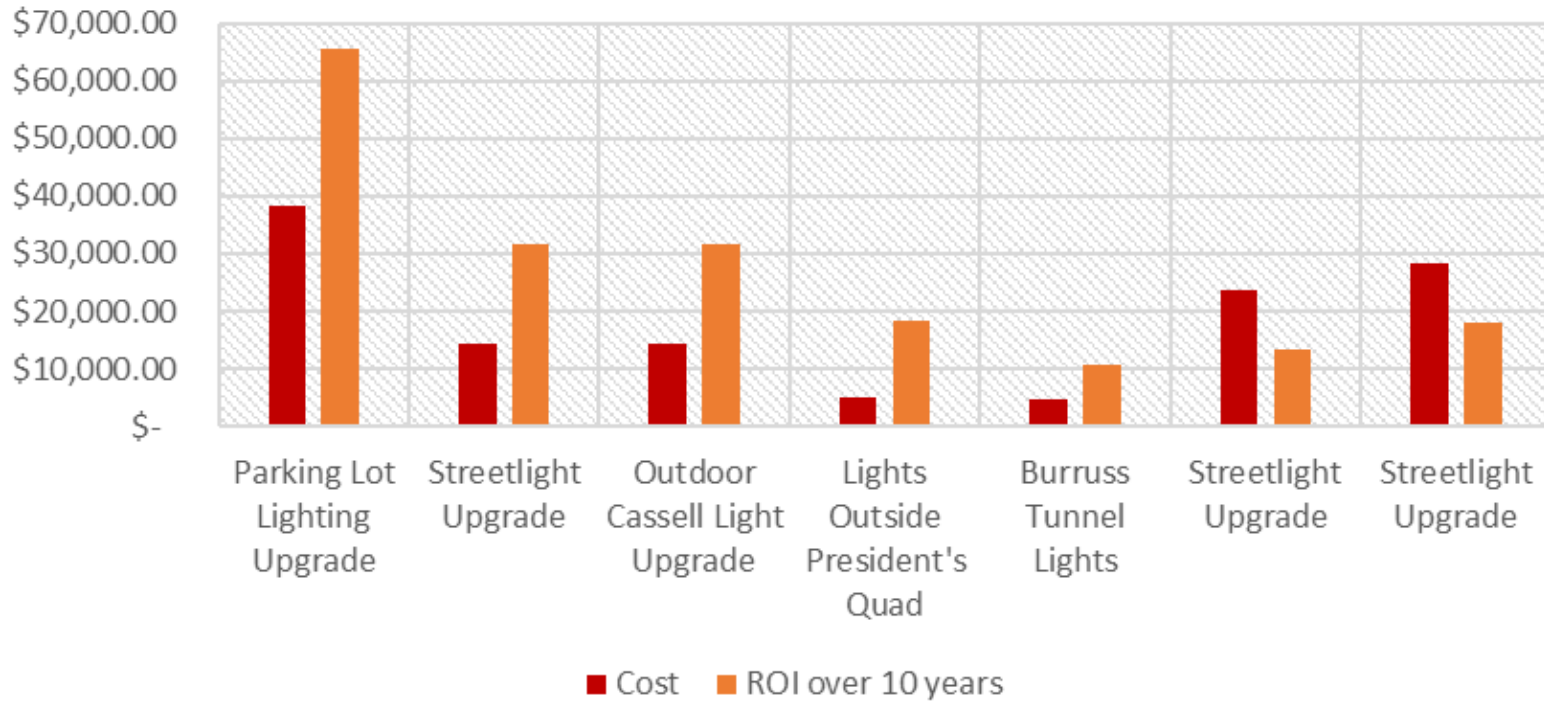


Solar Charging Table

- Students inspired by a similar product at another university
- Manufactured by local supplier
- ADA Accessible
- Compact design and styling that fits campus

LED Conversions

Cost vs Savings of LED Outdoor Lighting



- Buildings and Outdoor Lighting
- Number of Conversions
- Safety and Security improvements
- Cost vs Savings







Obstacles

- Managing the Program
- Funding
- COVID
- ADA Compliance
- New technologies

Overall Benefits

- Student experience
- Student interest
- Closer to CAC goals
- Savings
- Planning for future
- Improved livability
- Community interactions





Why does this Program Work

- Support from University
- Support from Financial Community
- Support from Facilities and Operation
- Support from Academia
- Support from Students