

Energy and Sustainability Committee Meeting Minutes
October 31, 2011
2:00 – 3:00 p.m.
Presidents Board Room, Burruss Hall

Present: Fred Selby, Kayla Smith (for Sherwood Wilson), Savita Sharma (for Dwight Shelton), John Bush (for AVP - University Planning), Denny Cochrane, Elena Dulys (for Donna Ratcliffe), Bruce Ferguson, Rob Lowe, Georg Reichard, Mintai Kim, John Randolph, Nancy McGehee, Becky Saylor, Tom Tucker, Paul Winistorfer, Michael Painter, James Dale, Kyle Gardiner, and Alex Kosnett.

Absent: Mike Coleman

Guests: John Chermak, Angie De Soto, Kara Dodson, William Hall, Alyssa Halle, Richard Hirsh, Maura Leveroos, Sarah Surak, Eleni Healey (Sierra Student Coalition, Beyond Coal at Virginia Tech).

Call Meeting to Order and Welcome Guests

Chair Fred Selby called the meeting to order, welcomed everyone, and invited all attendees to introduce themselves.

Approval of Agenda

The Committee approved the agenda as proposed.

Approval of the September 26, 2010 Minutes

Draft minutes from the September 26, 2011 meeting were presented and approved by the Committee.

Old Business

1) 2011-2012 Request for Proposal for Student Organization Sustainability Initiatives (Green RFP)

Denny Cochrane reviewed the highlights of the Green RFP Memo dated September 13, 2011(see “E&SC 103111 Attachment 1 – Green RFP Memo.PDF”) to highlight the criteria, process, timelines, and format. Student organization sustainability initiative proposals must support the implementation of the Virginia Tech Climate Action Commitment and Sustainability Plan, and are to be submitted to the Office of Energy and Sustainability. He then presented a spreadsheet containing 19 proposals that had been submitted to date from seven student organizations. The Energy and Sustainability Committee is charged with prioritizing the top student proposals. To accomplish this task last year, the Committee created a Green RFP Subcommittee to review all Green RFPs and to present their recommendations for approval and funding consideration to the full Committee. The Subcommittee consisted of four members of the full committee to include the Sustainability Program Manager (Chair), one faculty member, one staff member and one student member, and the review process was very successful. Denny

Cochrane recommend using the same approach again this year and the Committee concurred.

A new 2011-2012 Subcommittee was then created and which includes: Denny Cochrane (Chair), Nancy McGhee (faculty), Rob Lowe (staff), James Dale (graduate student) and Michael Painter (graduate student). Both graduate student members volunteered to serve, and since neither was associated with a student proposal, the Committee decided to allow both to serve on the Subcommittee this year. The Green RFP Subcommittee will begin their review immediately with results forwarded electronically to the full Committee. The final prioritization will be conducted by the full Committee via electronic vote. The results of the Committee prioritization will be presented to the Office of Budget and Financial Planning not later than November 18, 2011.

New Business

2) Powerhouse Biomass & Emisshield Update

Fred Selby shared a presentation on two recent sustainability-related activities at the campus powerhouse (see “E&SC 103111 Attachment 2 – Biomass, Emisshield Updat.pptx”): (1) an initial trial burn of manufactured wood pellets in #11 boiler over the period 9/6/11 – 9/8/11; and (2) the application of Emisshield, a high emissivity coating to the outer tube and refractory surfaces inside of #7 boiler.

Approximately 10 tons of pelletized wood biomass from Biomass Energy, LLC (formerly WoodFuels Virginia, LLC) was successfully co-fired with coal over the period 9/6/11 – 9/8/11 in VT’s Boiler #11. The Biomass Energy wood pellets are:

- sourced from logs purchased within an approximate 200 miles radius of its Bumpus, VA manufacturing facility
- typically ~8,150 btu/lb @ ~5% moisture received compare with coal @ 13,250 btu/lb
- ~0.25” diameter x 2.5” length
- ~45 lbs/ft³ bulk density
- additive-free

Emisshield, a high emissivity product originally developed by NASA in 1994 for the Space Shuttle program, has been now licensed for commercial heat transfer applications, one of which is boiler furnaces; its emissive properties improve heat transfer into the boiler feedwater to produce steam at higher boiler efficiencies. Funding was obtained to clean the boiler tube exterior surfaces and apply the coating to #7 boiler in late August. Data collection and performance assessment are currently underway.

3) Open Discussion

Following up with the primary Open Discussion topic from the September 26 Committee meeting, Fred Selby shared that he had further discussed with Associate Vice President for Facilities Mike Coleman some possible activities for the committee to work on during the 2011-2012 academic year and that both agreed a comprehensive reassessment of the 2009 Sustainability Plan, including a review of outstanding Immediate Term and Mid-

Term actions/measures would be appropriate. This was presented to the committee and received concurrence. John Randolph commented that with the Sustainability Plan's Immediate Phase (2009-2012) nearing its completion, this was both the appropriate time and appropriate group to take this on. Fred Selby added that as this would be all-encompassing and time/resource consuming, this would be the Committee's key activity focus for the current academic year.

Future Meetings

Dates: The remaining scheduled meeting dates for Academic Year 2011-2012 are as follows:

- November 28, 2011
- January 30, 2012
- February 27, 2012
- March 26, 2012
- April 30, 2012

Times and Location: All meetings will be held from 2:00 p.m. to 3:00 p.m. in the Presidents Board Room, 210 Burruss Hall unless noted above.

Adjourn

The meeting was adjourned.



MEMORANDUM

TO: Student Organizations

FROM: Denny Cochrane, Sustainability Program Manager, Office of Energy and Sustainability *DCC.*

SUBJECT: 2011-12 Request for Proposal for Student Organization Sustainability Initiatives (Green RFP)

DATE: September 13, 2011

On June 1, 2009, the Board of Visitors unanimously approved The Virginia Tech Climate Action Commitment Resolution and endorsed the accompanying Sustainability Plan. Student engagement was an important factor in achieving this significant accomplishment, and will continue to be crucial as the University implements specific actions in the plan, particularly those actions that will positively impact the behavior of students, faculty, staff, and campus visitors and help the campus manage within limited resources. The University has created a program to solicit and respond to proposals from recognized student organizations that would help to advance the Campus Sustainability Plan. The intent of this process will be to direct a variety of existing university financial resources to sustainability initiatives each year in order to accomplish the intended impact of a so called "Green Fee" but without requiring an additional increase in the fees charged to students. This approach acknowledges the complexity of the institutions regulated funding structure, the cross-cutting nature of sustainability, and the institutional wide interest in sustainability.

The University is interested in working with student organizations to identify potential investments that are directly targeted to specific projects and therefore limited in size and scope. The university is especially interested in proposed investments that produce realizable savings. In general requests for one-time support are preferred over ongoing support.

The process and timeline for this program is shown in Attachment #1. The process will begin with the Office of Budget and Financial Planning issuing a RFP to the Office of Energy and Sustainability. Student organizations will be notified and may identify proposals using the form shown in Attachment #2. Please contact Denny Cochrane, Office of Energy and Sustainability, for assistance in completing the form (denniscc@vt.edu or 231-5184). The proposal deadline is October 12, 2011. The completed form(s) will be submitted to the Office of Energy Sustainability for presentation to the Energy and Sustainability Committee. This committee is comprised of faculty, staff, graduate and undergraduate students, and is a part of the University governance system.

The Energy and Sustainability Committee will consider and evaluate each proposal separately on its own merit. Factors to be considered include the following:

- How does the proposal help to achieve the goals of the Virginia Tech Climate Action Commitment and Sustainability Plan?
- Does the proposal generate University costs savings that exceed the cost of implementation?
- Is the funding request a one-time or ongoing need?
- Does the proposal leverage other sources of funding?(or volunteer effort?)

Invent the Future

The Energy and Sustainability Committee will prioritize the top student proposals and forward those to the Office of Energy and Sustainability for review and consideration. In coordination with the Office of Energy and Sustainability, the Office of Budget and Financial Planning will determine the potential funding strategies and appropriate approvals. If a proposal is funded, the Office of Energy and Sustainability will serve as the liaison between student organizations and the University.

Thank you for your interest in the University's campus sustainability efforts.

cc: Sherwood Wilson
Mike Coleman
Ed Spencer
Tim Hodge
Dwight Shelton

STUDENT ORGANIZATIONS SUSTAINABILITY INITIATIVE PROPOSAL DATES

DATE	ACTIVITY
Beginning of Fall Semester	Request For Proposal (RFP) released to Office of Energy Sustainability from Office of Budget and Financial Planning
Beginning of Fall Semester	Office of Energy and Sustainability notifies Student Organizations of the RFP
October 12	Proposal(s) due to Office of Energy and Sustainability from Student Organizations
October 12-31	Proposal(s) reviewed by the Energy and Sustainability Committee
November 18	Top proposals are selected by Energy and Sustainability Committee and presented to Office of Energy and Sustainability and onto the Office of Budget and Financial Planning
November 28- May 1	Office of Budget and Financial Planning, in coordination with the Office of Energy and Sustainability, determines potential funding options for proposals and seeks the appropriate approvals.
May 1	Proposals receiving funding are announced by the Office of Energy and Sustainability
July 1	Funding for projects established for the fiscal year in Banner by the Office of Budget and Financial Planning.
July 1 - June 30 (Fiscal Year)	Project implemented by Student Organization with oversight from Office of Energy and Sustainability
July 1 - June 30 (Fiscal Year)	Project progress and goals monitored by Office of Energy and Sustainability
Project Complete	Both Student Organization and Office of Energy and Sustainability report to Energy and Sustainability Committee on completed projects
Project Complete	Public announcement to community regarding completed projects and goals which were accomplished
Post-Project	Continued monitoring of ongoing projects (if applicable) to ensure that goals and targets continue to be met

STUDENT ORGANIZATION SUSTAINABILITY INITIATIVE FUNDING PROPOSAL

Part I- General Information:

Name of Student Organization
 Contact/Responsible Person
 Contact Office Held/Title
 Contact Email Address
 Contact Telephone Number

Part II- Project Cost Information

Estimated Cost of this Proposal See III.C. below

Estimated Savings - See III.D. below

Net Cost of this Proposal =

Part III- Supporting Information

A. Please describe your sustainability initiative and attach supporting documentation.

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B. How does this initiative help to achieve the goals of the Virginia Tech Climate Action Commitment Resolution and Sustainability Plan?

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C. What is the cost of your proposal? Please describe in adequate detail the basis for your cost estimate.

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D. Will your proposal produce cost savings for the University? If so, how much? Please describe in adequate detail the basis for your savings estimate.

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E. Is this funding request an Ongoing or One-Time change (please check one)?

One-time

Ongoing

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F. Is funding available for this request from another source? If yes, describe the funding (source, amount, etc.)

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Part IV- Requestors/Reviewers

Prepared By (Name of Contact for Student Organization) (Date)

Reviewed By (Name of Office of Energy and Sustainability Representative) (Date)



**E&SC October 31, 2011
Powerhouse Biomass &
Emissshield Update**

Biomass Update



- Biomass Trial Burn conducted 9/6-9/8 w/ #11 Boiler
 - ~10 tons of pelletized wood biomass co-fired with coal
- Source: Biomass Energy, LLC (formerly WoodFuels Virginia, LLC) Bumpus, VA manufacturing facility
 - Virginia's largest chip production & pellet manufacturing operation)
- Materials: Biomass Energy, LLC wood pellets are:
 - Sourced from logs purchased within a ~200 miles radius of facility
 - Typically ~8,150 btu/lb @ ~5% moisture received (VT coal @ 13,250 btu/lb)
 - ~0.25" diameter x 2.5" length
 - ~45 lbs/ft³ bulk density
 - Additive-free

Biomass Update

- Test burn increments
 - 9/6/11: 5% wood pellet mix
 - 9/7/11: 10% wood pellet mix
 - 9/8/11: 15% wood pellet mix
- Operational observations:
 - Biomass fuel is very susceptible to moisture exposure and swelling due to rainfall
 - Slight increase in NO_x emissions was noticed at the higher biomass percentages (however, still well within permitted limits)
 - Baghouse/scrubber operation seemed to be unaffected during trials
 - Combustion changes were noticed at the higher biomass percentages.
 - Further testing will be required to explore air/fuel ratios and combustion zone configurations to achieve improved burn characteristics



Energy - Emissshield

- Core technology originally developed by NASA in 1994, as the heat shield for the X33 and X-34 Space Plane Program
 - Licensed by NASA to Emissshield in 2001.
 - Unique 4 to 8 mil coatings of ceramic nanoparticle materials with high emissivity
 - Now being used in ceramic/refractory, metal, textile, and other markets where thermal protection and re-radiation of heat is needed (i.e., furnaces and boilers)



- The technology results in radiant and convective energy from the burners and hot furnace gases being absorbed at the surface of the coating. This energy is then re-radiated to the cooler furnace load (i.e. feedwater) – **higher efficiency!**



Energy - Emissshield

- Applied to #7 Boiler (8/28-8/31)
 - Entire #7 Boiler combustion chamber first sandblasted with Black Beauty abrasive
 - Tubes cleaned with alkaline cleaner
 - Tube (1,115 ft²) and refractory (985 ft²) surfaces spray-coated with Emissshield
 - Data collection and performance assessment underway



After cleaning/blasting



As-found existing



After Emissshield coating