# SUSTAINABILITY INITIATIVES BY STUDENT ORGANIZATIONS FUNDING PROPOSAL

## Part I - General Information

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|---|---|
| **Name of Student Organization** | Students for Sustainable Practice |
| **Contact/Responsible Person** | Ben Pollins |
| **Contact Office Held/Title** | Student |
| **Contact Email Address** | Benp2@vt.edu |
| **Contact Telephone Number** | 703-677-7109 |

## Part II - Project Cost Information

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|---|---|---|
| Estimate Cost of this Proposal | $3,500 | See Part III.C |
| Estimated Savings – | $1,207 annually per hood | See Part III.D |
| **Net Cost of this Proposal** | **Simple Payback = 2.9 years** | |

## Part III - Supporting Information

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

The purpose of this RFP is to propose an upgrade to the current Fume Hoods at Virginia Tech. Virginia Tech's Blacksburg campus has about 1,400 functional laboratory fume hoods, each of which consume as much electricity as 3.5 average households. For safety reasons, the air supply for the hoods comes entirely from outside the building and must therefore be temperature controlled. Fume Hoods must also always remain on. Fume Hoods are designed to maintain a constant face velocity, so when the fume hood cover or "sash" is lowered, the fan speed and volume of air are reduced. A lowered sash also serves to improve lab occupant safety by providing a protective barrier between the occupants and any potentially hazardous chemicals under the fume hood.

If Virginia Tech were to install Automatic Fume Hood Sashes, which close when not in use, fume hood energy consumption would decrease by up to 43%. Auto Sashes connect to a building's information system, so energy savings are simple to monitor. The Auto Sash system is versatile and retrofits to most fume hoods. USGS and several universities use the system. This document proposes the acquisition of a pilot Auto Sash to install in a campus laboratory building with existing advanced electricity monitoring equipment. This will permit the accurate monitoring of fume hood savings based on an established electricity use baseline.

Case study and product information is attached.

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

*Policy Point # 1 - Virginia Tech will be a leader in Campus Sustainability.*

- Adopting the use of Auto Sashes on campus will solidify Virginia Tech's reputation as a campus dedicated to sustainable technology and infrastructure.

*Policy Point # 3 - Virginia Tech will establish a target for reduction of campus GHG emissions to 80% below 1990 emissions level by 2050.*

- A single Fume Hood retrofitted with an Auto Sash will reduce our carbon footprint by 22,575 lbs annually.

*Policy Point # 4 - Virginia Tech will work toward these emission reduction targets through improved energy efficiency.*

- A single Fume Hoods retrofitted with an Auto Sash will reduce electricity consumption by 29,419 kWh annually..

*Policy Point # 7. Virginia Tech will improve electricity and heating efficiency of campus facilities and their operations, including lighting efficiency.*

- Automatic Sashes on Fume Hoods are a laboratory improvement with significant and measured efficiency and cost benefits.

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

Budget Cost: $3,500
Green Energy Hoods estimates a $3,500 cost per unit including installation for Virginia Tech.

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.
Green Energy Hoods estimates a $3,500 unit plus installation cost and works with an installation team 30 minutes South of Blacksburg. Fume Hood energy consumption is reduced by 85% when closed.

**Anticipated Payback from Green Energy Hoods:**

Cost Per CFM - $3.55
CFM Per Fume Hood = 800 CFM (based on 6' fume hood)
CFM Reduction with Auto Sash = 340
Actual CFM with Auto Sash = 460
Energy Savings Per Year = 340 x 3.55 = $1,207
Budget Cost = $3,500.00
Payback = 2.9 years

See attached Fume Hood calculator for electricity and energy saving: http://fumehoodcalculator.lbl.gov/index.php

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

× **One-time** ☐ **Ongoing**

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**

Ben Pollins

Prepared By (Name of Contact for Student Organization) Date 11/9/2016

Ruben Avagyan

Reviewed By (Name of Appropriate University Official) Date 11/9/2016

Denny Cochrane

Reviewed By (Name of Office of Energy and Sustainability Representative) Date 12/1/16