

# SUSTAINABILITY INITIATIVES BY STUDENT ORGANIZATIONS FUNDING PROPOSAL

## Part I - General Information

<b>Name of Student Organization</b>	Sustainable @ VT
<b>Contact/Responsible Person</b>	Pamela Block, Meredith Hickman, Courtney Wilson
<b>Contact Office Held/Title</b>	Active Members
<b>Contact Email Address</b>	pamela93@vt.edu
<b>Contact Telephone Number</b>	410-926-4454

## Part II - Project Cost Information

Estimate Cost of this Proposal	\$30,500	See Part III.C
Estimated Savings –	\$221.23	See Part III.D
<b>Net Cost of this Proposal</b>	<b>\$30,276.77</b>	

## Part III - Supporting Information

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

There has been a marked move by consumers from non-renewable to renewable consumption as sustainability has moved to the forefront of consumers' minds. Here at Virginia Tech that can easily be seen as more and more students opt for reusable water bottles rather than plastic single use containers. This shift has led students to look for places to refill these bottles, but unfortunately our campus is lacking in convenient and accessible water bottle refilling stations. While our campus has water fountains in most buildings, the water fountains are not convenient for refilling water bottles. We seek to fill this need by requesting water bottle refilling stations to be located strategically throughout campus. Previously approved proposals have proven to be incredibly popular amongst the student body, and have sparked initiatives outside the Green RFP program to place them around campus.

Plastic water bottles are inherently wasteful as they are single use items, which are typically used once and hopefully recycled, but often thrown away. Discarding plastic bottles in recycling or trash still poses a recurring cost to the University. Refill stations need only initial funding and then very low maintenance costs to follow. Working to reduce the amount of waste from plastic water bottles will help decrease the amount of waste the University produces and the costs associated with that waste.

The Green RFP Program has provided funding for nearly 30 Water Bottle Refill Stations which are located in strategic buildings to include the War Memorial Gym, McComas Hall, Squires Student Center, Newman Library, Litton-Reaves Hall, East Eggleston Hall, Lavery Hall, Owens Dining Hall, Student Services Building, and the Graduate Life Center at Donaldson Brown.

This proposal requests the purchase and installation of enough Water Bottle Refill Stations to make sure that each Residence Hall has at least one unit. This includes 17 Water Bottle Refilling "Retrokit" Stations to be located in the following Residence Halls and Special Purpose Housing: Smith Career Center, O'Shaughnessy, East Ambler Johnston, West Ambler Johnston, Slusher Tower, Slusher Wing, Newman, Pedrew-Yeates, New Hall East, SPH-A, SPH-C, SPH-L, SPH-M, SPH-N, SPH-O, SPH-Q, and SPH-R. Additionally, 6 Residence Halls and Special Purpose Houses will require the purchase and installation of a new water fountain with Bottle Filler unit and require upgrades to the plumbing and electrical wiring: Cochrane, Hillcrest, SPH-B, SPH-G, SPH-I, and SPH-J.

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

Section 5 B.3 of the Climate Action Commitment Resolution it clearly calls for the University to “Add filtered water refilling stations for water bottles in student centers”.

“Making water-refilling stations available will encourage the use of reusable containers over purchasing bottled water for students, faculty, and staff. It can also be paired with an education campaign to let students know the benefits of reusing containers. Reusing a container for water is much better than using individually bottled water, even if the container is recycled. This initiative will significantly reduce bottled water use and waste.”

One objective of the Climate Action Commitment is to, “enhance Virginia Tech’s sustainability programs and culture.” To become an exemplar in Sustainability a change to “smart and sustainable behavior and investment” must occur. Not only will Water Bottle filling stations in War Memorial Hall help to achieve this objective, they will uphold CAC resolution #10 that, “Virginia Tech will engage students, faculty and staff through education and involvement to reduce consumption of energy, water, and materials in academic and research buildings, dining and residence halls, and other facilities.”(pg.12) though a counter that displays the quantity of bottles saved from the landfill.

In America, an estimated 38 million plastic bottles are added to landfills annually. The proposed water bottle filling stations offer incentive and convenience for students to carry reusable water bottles by filling bottles quickly and creating a “feel good” response in the user when the counter adds one to, “bottles saved from landfill”. Each day hundreds of active students attend classes, practice sports, workout and more in War Memorial Hall. Water bottles are filled slowly, with outdated conventional water fountains, encouraging students to bring plastic water bottles to each workout. We believe water bottle filling stations will reverse this trend. The counter on each water bottle filling station will uphold the long-term plan for a sustainable future on page 93 of the Climate Action Commitment which, “depends on the internal will of students, staff and faculty to adopt smart, less wasteful patterns of material and energy use...”

Page 56 of the Climate Action Commitment outlines the first midterm prospective action for Virginia Tech recycling “to reduce waste generated per student/employee.” Water bottle filling stations do this by encouraging long-term reduction in the number of plastic water bottles individuals using War Memorial Gym throw away.

These water bottle filling stations will prevent more plastic from bottles going into landfills and will reduce in carbon dioxide emissions in production and distribution of plastic water bottles. Solution #4 to achieve the goals of the CAC on page 16 recommends implementing, “Measures to procure low life-cycle cost products, to recycle materials, and to reduce water, wastewater, and landfill waste, all of which save energy and GHG emissions.”

Implementing these water bottle filling stations will provide engagement education to the campus community to reduce waste generated and reduce greenhouse gas emissions.

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

Detailed coordination was done with Mr. Tim Gift, Associate Director for Facilities Management, Housing and Residence Life. Tim prepared a “Water Fountain Inventory” for all of the Residence Halls and Special Purpose Housing (Oak Lane Community). The inventory includes a comprehensive listing of all existing water fountains on each floor of each building. Priority was given to providing a “Retrokit” unit that can be accommodated by an existing water fountain (Oasis and Elkay brands primarily). However, in buildings where a “Retrokit” could not be used, Mr. Gift assessed whether the existing plumbing and electric could be used to support the installation of a new water fountain and bottle refill unit.

Based on past costs, Mr. Gift estimates the following costs:

- Purchase and installation of “Retrokit” unit: \$1,000
- Purchase and installation of new water fountain and bottle refill station (using existing plumbing and electrical wiring: \$1,500
- Purchase and installation of new water fountain and bottle refill station (with upgrades to plumbing and electrical wiring: \$2,250

This proposal requests funding for 17 “Retrokits” and 6 new water fountains that will require upgrades to plumbing and electrical wiring. This will ensure that every Residence Hall and Special Purpose Housing unit will have at least one water bottle refill station.

**Total cost: \$30,500**

**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.**

It is hard to know with much amount of accuracy the amount of savings from reduced costs in recycling and waste removal. However, the water filling stations in Squires Student Center and Newman Library were installed in the late spring semester of the 2011-2012 school year. The digital counter on these stations was an average of 11929 bottles per station as of October, 2012. This number documents 5 months of plastic reduction for one water bottle station. One school year (9 months),

$$[(11,929 \text{ bottles}) / (5 \text{ months})] * (9 \text{ months}) = 21,472 \text{ bottles per station}$$

$$(21,472 \text{ bottles per station}) * (23 \text{ stations}) = 493,856 \text{ bottles}$$

According to the International Bottled Water Association's website, the average gram weight of the 16.9 ounce "single serve" bottled water container is 12.7 grams. The weight of the plastic bottles not used from one water filling station is 272,697 grams per school year. The total weight in grams of the plastic bottles not used from all 23 proposed water filling stations in one school year is 8,998,915.2 grams. There are 907,185 grams in a ton. Thus the weight in tons is 9.91 tons per school year.

$$(21,472 \text{ bottles per station}) * (12.7 \text{ grams}) = 272,697 \text{ grams per station}$$

$$(493,856 \text{ bottles}) * (12.7 \text{ grams}) = 6,271,971.2 \text{ grams}$$

$$(8,998,915.2 \text{ grams}) / (907,185 \text{ grams per ton}) = 9.91 \text{ tons}$$

The university pays \$32 a ton for recycling bottles & cans. Each year the university will save \$ 317.43. This savings should be expected to increase as the trend toward using reusable water bottles because convenient infrastructure increases.

$$(\$32) * (6.91 \text{ tons}) = \$221.23$$

**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.)**

Not at this time.

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**Part IV- Requestors/Reviewers**

Prepared By (Name of Contact for Student Organization): Pamela Block

Date: Oct 27, 2014

Reviewed By (Name of Appropriate University Official):

Tim Gift, Associate Director for Facilities Management, Housing and Residence Life

Date: Dec 10, 2014

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

Denny Cochran, Sustainability Program Manager

Date: Dec 19, 2014