

SUSTAINABILITY INITIATIVES BY STUDENT ORGANIZATIONS FUNDING PROPOSAL

Part I - General Information

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

Part II - Project Cost Information

Estimate Cost of this Proposal	\$58,280.00	See Part III.C
Estimated Savings –	\$ 134.76	See Part III.D
Net Cost of this Proposal	\$58,145.24	

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. Previous proposals to begin placing such stations have proved to be incredibly popular amongst the student body, and have sparked initiatives outside of the Green RFP program to place them around campus.

Plastic water bottles are inherently wasteful as they are single use items 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 14 Water Bottle Refilling Stations to be located in the following four academic buildings: McBryde Hall (6), Derring Hall (5), Cheatham Hall (2) and Pamplin Hall (1). The preferred brand name is Elkay EZH2O, though some units require an Oasis model instead. This proposal requests funding to replace the existing single cooling units (see attached photos) with a combination of new single cooling units with filling stations and bi-level cooling units with filling stations.

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 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.

Total cost estimate (equipment, labor, installation): \$58,277.70.

Mr. Jim McDaniel (Project Coordinator for Campus Renovations Services, VT Facilities Department) oversaw the installation of the majority of the 20 Water Bottle Filling Stations for the 2013-2014 Green RFP Program. He has reviewed this proposal in great detail. He conducted a feasibility and cost estimate with contractor personnel who will likely do the installation to ensure we have captured all equipment, labor, and installation costs. Since McBryde Hall has several interior walls made of Hokie stone, the contractor recommends fabricating a cabinet to facilitate installation for the bi-level cooling units. Reference Mr. McDaniel’s December 18, 2014 email for detailed cost information (see attachment). Highlights are as follows:

Elkay EZH2O equipment cost estimate:

- A single cooler unit w/ filling station costs \$925.18.
- A bi-level cooler unit w/ filling station costs \$1,267.88.
- Installation (plumber, electrician, and painter) cost estimate: \$1,452.82.
- Installation (cabinet for McBryde Hall) cost estimate: \$3,700.
- *Contingency cost is 15%.

Construction costs for each of the four buildings:

- McBryde Hall: \$34,429.64 (4 bi-level cooler units w/ cabinet and filling stations, and 2 single cooler units w/ filling stations).
- Derring Hall: \$14,461.72 (2 bi-level cooler units w/ filling stations, and 3 single cooler units w/ filling stations)
- Cheatham Hall: \$6,257.62 (2 bi-level cooler units w/ filling stations).
- Pamplin Hall: \$3,128.81 (1 bi-level cooler unit w/ filling station).

Total cost estimate (equipment, labor, installation): \$58,277.70.

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 difficult to determine 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 11,929 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),

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

This proposal requests funding for 14 stations. Using the calculation above, we would expect to have (21,472 bottles per station) * (14 stations) = 300,608 bottles for the 14 stations.

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 14 proposed water filling stations in one school year is 3,817,758 grams. There are 907,185 grams in a ton. Thus the weight in tons is 4.21 tons per school year.

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

$$(300,608 \text{ bottles}) * (12.7 \text{ grams}) = 3,817,758 \text{ grams}$$

$$(3,817,758 \text{ grams}) / (907,185 \text{ grams per ton}) = 4.21 \text{ tons}$$

The university pays \$32 a ton for recycling bottles & cans. Each year the university will save \$ 134.67. This savings should be expected to increase as the trend toward using reusable water bottles because convenient infrastructure increases. $[(\$32) * (4.21 \text{ tons}) = \$ 134.67]$.

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):

Jim McDaniel, Projects Coordinator, Campus Renovations Services, Facilities Department

Date: Dec 18, 2014

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

Denny Cochrane, Sustainability Program Manager

Date: Dec 19, 2014