SUSTAINABILITY INITIATIVES BY STUDENT ORGANIZATIONS FUNDING PROPOSAL

Part I - General Information					
Name of Student Organization	Students for Clean Energy at Virginia Tech				
Contact/Responsible Persor	Patrick Gallagher				
Contact Office Held/Title	Member				
Contact Email Address	patgall@vt.edu				
Contact Telephone Number	f 615-974-4755				
Part II - Project Cost Information					
Estimate Cost of this Proposal	\$22,690	See Part III.C			
Estimated Savings –	Negligible	See Part III.D			
Net Cost of this Proposal	\$22,690				

Part III - Supporting Information

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

We are proposing the installation of Solar Tables outside of Newman Library and the new classroom building in the North Academic Precinct. The solar tables are eight seat picnic tables made from recycled plastic, with three 45-watt solar panels on the south facing side of the umbrella and a maintenance free battery bank for solar energy storage that allows for day and nighttime use. The solar energy potential in Blacksburg exceeds the levels required for proper performance, and the proposed locations were chosen to ensure ample access to sunlight [1]. The battery bank has the capacity to store enough power to charge electronic devices continuously for up to two cloudy days. Each table includes two standard 110V outlets, two USB ports for charging electronics, adjustable angular settings for the canopy umbrella for optimal solar exposure on panels, and a solar charge controller with digital readout for display of solar energy production. Additionally, the tables are approved to earn LEED points for the adjacent building. We are proposing one location to be adjacent to the new classroom building under construction scheduled for 2015. The tables will create a 'power oasis' allowing students to charge their electronic off the grid while enjoying Tech's scenic campus. The most important impact of this initiative is to serve as an educational tool and a highly visible icon of sustainability on campus. The solar tables will become part of the student body's daily routine, influencing the sustainability dialogue on campus. Finally, the system works "off the grid", meaning that it does not need to be connected to the electricity grid and therefore, should not require Appalachian Power's approval.

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

This initiative will help Virginia Tech become a leader in campus sustainability. While the initiative's impact on GHG emission will be negligible, the solar tables will be a symbol of the University's commitment to sustainability, despite the restrictions on renewable energy generation under the APCo contract. The Virginia Tech campus will be able to operate as a sustainable laboratory by making use of this unique and revolutionary product that supports clean energy in "off-the-grid" applications. Additionally, the tables will serve as a platform, both physically and symbolically, to engage and educate the community on renewable energy through interaction and dialogue. The highly visible solar panels will impact a large number of students' behavior and the recycled table material will encourage them to reduce and recycle. As one of the first sights to greet visitors who enter campus on West Campus Drive, placement in front of the Classroom Building will give a good first impression about the University's interests in sustainability. Also, the initiative will count towards LEED certifications for new developments. This initiative will become a model for other campuses around the world, and garner positive media coverage of the University's steps to improve sustainability.

\$22,690 for 2 solar tables. The cost per table is \$9,495.00. The	e shipping cost per table is \$1,850.00. If 3
more Solar-Doks were purchased a 4% discount would be added, due	e to an incentive by Enerfusion Inc. for the
purchase of 5 or more tables. The shipping cost is expected to dec	crease, if more tables are purchased. This
initiative is also scalable; any number of solar tables would be a great a	addition to Virginia Tech's Campus.

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

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.

Although the energy saving returns are minimal, these solar panels are intended as a centerpiece for educational purposes and a stepping stone towards more sustainable initiatives.

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.)			
	No other funding available.			

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Part IV- Requestors/Reviewers		
Prepared By (Name of Contact for Student Organization)	Patrick Gallagher	Date 10/24/14
Reviewed By (Name of Appropriate University Official)	Denny Cochrane	Date 10/24/14
Reviewed By (Name of Office of Energy and Sustainability Representative)	Steve Mouras	Date 10/24/14

References

- 1. http://energy.gov/maps/solar-energy-potential
- 2. http://energyusecalculator.com/electricity_laptop.htm
- 3. http://www.usgbc.org/certification
- 4. http://www.enerfusioninc.com

<u>Appendix</u>

Colleges (32) already using Solar-Dok:

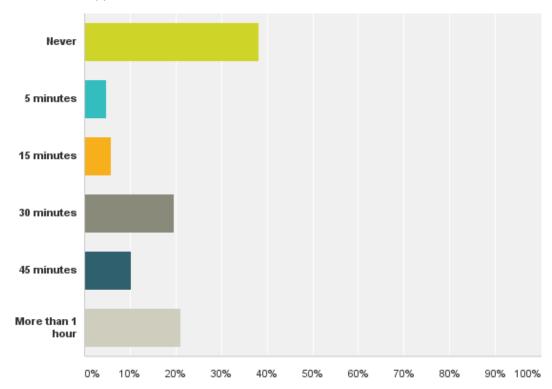
Mount Hood Community College, Boise State, UCLA, Pikes Peak Community College, University of Colorado Springs, Texas A&M, Missouri State University - Springfield, University of Missouri, Southwest Tennessee Community College, Southern Illinois University, Illinois State University, University of Wisconsin Stevens Point, Austin Peay State University, Vanderbilt University, Hope College, Vanderbilt University, Tennessee Tech, Pellissippi State Community College, Maryville College, Oxford College of Emory University, Florida A&M University, George Mason, University of Rochester, Temple University, Essex County College, Queens College, Lehman College, University of Florida, Hillsborough Community college, University of South Florida, Florida Atlantic University, Broward College

Survey Results

204 Virginia Tech students were surveyed using SurveyMonkey, which can be found at https://www.surveymonkey.com/s/NNNZJMY. The survey was distributed via social media and in-person in the library. The results show that 61% of students charge their phones on campus. 90% of students charge their laptops on campus. 79% of students would charge their electronics outdoors if the resources were available. And 96% of students believe there should be more solar panels on campus.

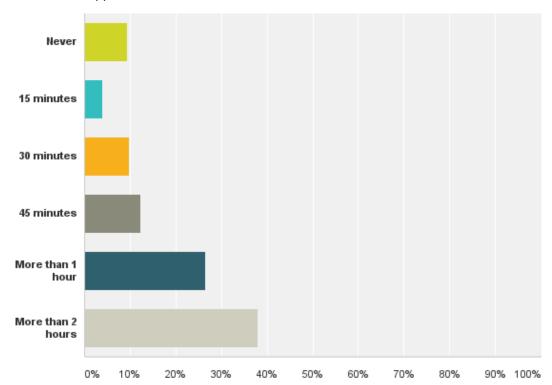
Q1: On an average day, roughly how much do you charge your phone on campus?

Answered: 204 Skipped: 0



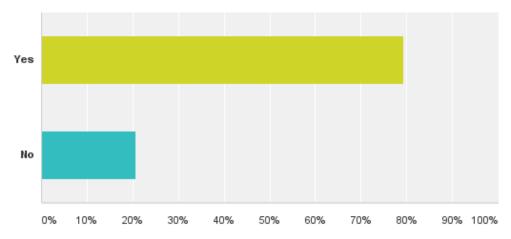
Q2: On an average day, roughly how much do you charge your laptop on campus?

Answered: 203 Skipped: 1



Q3: Would you charge your electronics outdoors if the resources were available on campus

Answered: 204 Skipped: 0



Q4: Do you think there should be more solar panels on campus?

Answered: 202 Skipped: 2

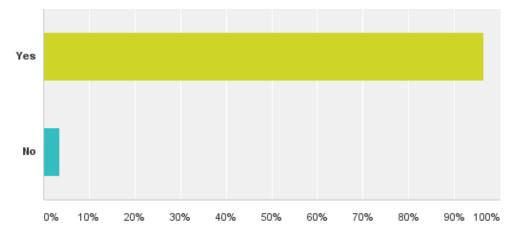




Figure 1.1: Solar-Dok custom Design



Figure 1.2: Awning Design

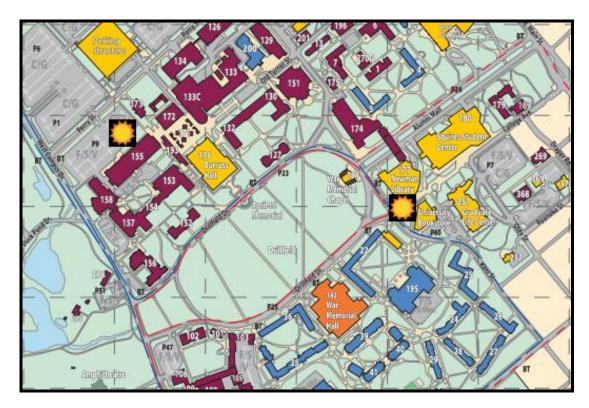


Figure 1.3: Location Map



Figure 1.4: Classroom Building



Figure 1.5: Newman Library