

STUDENT ORGANIZATION SUSTAINABILITY INITIATIVE PROPOSAL FORM

Part I- General Information:

Name of Student Organization	The Bio-Build Program
Contact/Responsible Person	Armin Jeddi Yeganeh & Maria Saxton
Contact Office Held/Title	Affiliate student members
Contact Email Address	yeganeh@vt.edu; mariaws2@vt.edu;
Contact Telephone Number	202-909-3951

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.

This proposal seeks funding from the Facilities Department at Virginia Tech to install one solar power charging table adjacent to Bishop Favrao Hall (BFH), the home of the Myers-Lawson School of Construction.

The rationale behind this proposal is that there is a lack of appropriate furniture for student use in this outdoor area, which has resulted in lack of community and student activity on the BFH lawn. In addition, the interior space of BFH is often crowded during the semester, making it difficult for students to find an appropriate seating area for collaboration. There is currently a square-shaped concrete pad (about 30x30 feet) between BFH and the LumenHaus that is used by the College of Architecture and Urban Studies (CAUS) as a venue for different purposes, including lunches, reunions, and other community events within CAUS (see attached documents). The pad is located at the entrance of BFH and receives direct sunlight during office hours. This makes it a logical place for installation of a solar table that could be used by students in different departments within CAUS and who may have classes in BFH or Cowgill Hall.

We believe that installing one solar power charging table could make this outdoor area more livable, provide quality outdoor study space, and further symbolize Virginia Tech's efforts toward campus sustainability. We ask for your help and to join us in a collaborative effort to demonstrate Virginia Tech's continued commitment to environmental, economic, and social sustainability. The tables we are recommending (CampusXL by Sunbolt) are fully engineered true off-grid solar powered charging stations and extremely robust and resilient to all weather conditions. Each table supports up to 75-150 hand held mobile device charges/day (typical use) and seats four comfortably with room for additional seating (see attached documents).

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

This project will further enhance Virginia Tech's reputation of being a leader in campus sustainability. Although solar power charging tables have limited energy savings, they are being used by university campuses around the globe to represent higher education institutions' commitment to sustainable development and mitigating the adverse effects of climate change. In fact, over 30 ConnecTables have been installed throughout the University of California school system alone. Despite the importance of creating a "sustainability culture" among students, many energy-saving initiatives, e.g., LED lights, are not necessarily noticed by the general public. The implementation of projects such as these solar tables could help build a culture of using renewable energy resources in building designs, especially among students in the College of Architecture and Urban Studies who will go into the workforce and have the power to design buildings in the near future. This project synergizes with the vision of the Virginia Tech Climate Action Commitment Resolution and Sustainability Plan, which is:

"Virginia Tech serves as a model community for a sustainable society. Sustainability is an integral part of the fabric of the university as it pursues enhanced economic stability and affordability, diversity and inclusion, environmental stewardship, expansion of knowledge, and education of future leaders."

In addition, this project promotes the Plan's policies as follows:

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

Adopting the use of solar power charging tables on campus will solidify Virginia Tech's reputation as a campus dedicated to sustainable technology and infrastructure.

Policy Point # 10 - Virginia Tech will engage students, faculty, and staff through education and involvement to develop and implement innovative strategies for efficient and sustainable use of energy, water, and materials in all university-owned facilities.

Adopting the use of solar power charging tables on campus will encourage students, faculty, and staff to promote sustainable use of energy. These tables can be used for educational purposes for classes in CAUS. With its close adjacency to the LumenHaus, many classes within CAUS can incorporate both the solar tables and the LumenHaus as models to teach students about sustainable and renewable design at both the undergraduate and graduate levels. Therefore, these tables will engage Virginia Tech students, faculty, and staff by providing an outdoor location for collaborative and multi-disciplinary work and learning.

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

This estimate is based on the implementation of one solar powered charging table, of the same model Virginia Tech currently uses. The cost for one of these tables, including installation is \$9,700.

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.

The energy savings of this project are relatively small. However, this table is intended to be used for educational purposes and campus promotional means, provide extra study and collaborative spaces, and increase the livability of the BFH lawn and its immediate surroundings.

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

One-time

Ongoing

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

Funding is not available from another source for this proposal.

STUDENT ORGANIZATION SUSTAINABILITY INITIATIVE PROPOSAL FORM (Continued)

Part IV- Requestors/Reviewers

Prepared By **Armin Jeddi Yeganeh & Maria Saxton**

Date **10/24/18**

Reviewed By **Andrew McCoy, Professor and Head of Department**

Date **10/24/18**

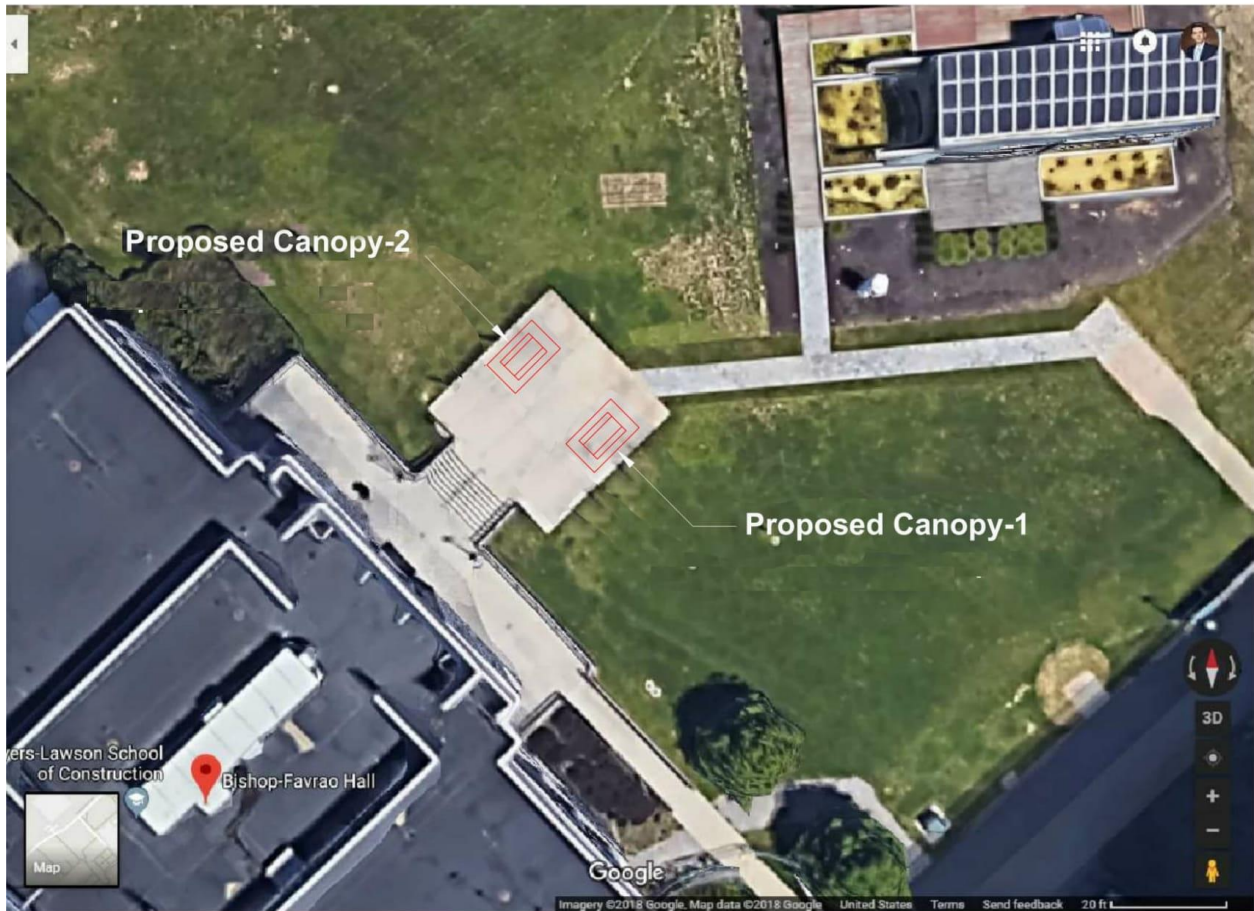
Reviewed By (Name of Office of Energy and Sustainability Representative)

Date

STUDENT ORGANIZATION SUSTAINABILITY INITIATIVE FUNDING PROPOSAL CONTACT LIST

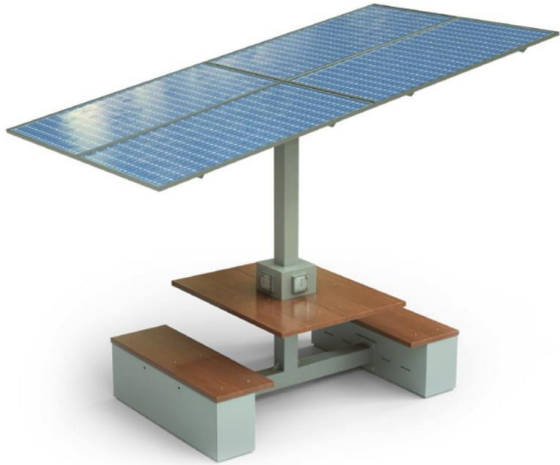
In the preparation of your Green RFP form, we encourage student organizations to seek input and guidance from the following list of university employees. These individuals are familiar with the form and the process. They can address the feasibility of your proposal, can provide a technical review, and can evaluate the cost & potential savings.

Area of Expertise	Name	Title	Email Address
Energy Management	Ruben Avagyan	Campus Energy Manager	rubena@vt.edu
Facilities: Housing & Residence Life	Todd Pignataro	Associate Director of Facilities	ptodd@vt.edu
Facilities: Buildings & Grounds Water Bottle Refill Stations	Jim McDaniel	Project Coordinator	jmcdani@vt.edu
Exterior Lighting	Bob Dellinger	Assoc. Director, Utilities	rdelling@vt.edu
Student Engagement & Campus Life	Eric Margiotta	Association Director	margiotta@vt.edu
Dining Services	Anthony Purcell	Assistant Director	purcella@vt.edu
Alternative Transport (Bike, Bus, Walk, etc.)	Jeri Baker	Director, Parking & Transportation	jab518@vt.edu
Landscape Architect	Bob Massengale	Site Planner	rnmassen@vt.edu
Hahn Horticulture Garden	Scott Douglas	Director/Instructor	dsd1@vt.edu
Recycling	Denny Cochrane	Sustainability Program Manager	dennisc@vt.edu
Miscellaneous	Karlee Siepierski	Campus Sustainability Planner	Skarlee3@vt.edu



Site Plan

The proposed Sunbolt CampusXL canopies are shown in front of BFH



SOLAR. WORK. STATION.

The CampusXL is a fully engineered true off-grid solar powered charging station integrated into an innovative 3/16" structural steel package. With the highest solar power capacity of any charging station on the market — this workstation is extremely robust and resilient to all weather conditions.

OVERVIEW

- A highly reliable, long endurance solar powered charging station
- A powerful 1kW DC solar array and 225 amp hour gel cell battery
- Architectural design, and a fully engineered commercial grade structure
- Supports up to 75-150 hand held mobile device charges/day (typical use)
- Supports charging for tablets, laptops, cameras, and other electronic devices
- Attractive non-glare LED table top lighting system for nighttime use
- ADA compliant design
- True off-grid solar power design that delivers dependable year round charging power even in worst case weather conditions
- Optimized system design includes high quality UL listed solar power components for safe and trouble-free performance
- 90mph wind speed rated self-ballasted structural steel construction
- Low maintenance with a ten to twenty year expected service life
- Seats four comfortably with room for additional seating



120 Volt and USB Outlets



ADA Compliant



Powerful Solar Array

BENEFITS

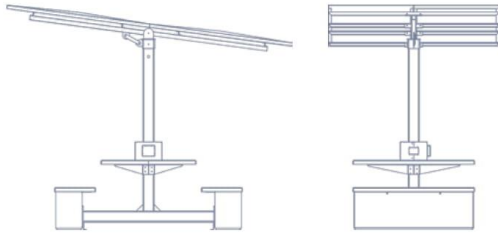
- Reduces carbon footprint
- A high-visibility green symbol with tangible benefits for your community
- Provides off-grid electronic device power in a convenient and attractive way
- Provides continuous electronic device charging even during extended grid power outages
- Complements a wide range of landscapes and architectural aesthetics
- A green infrastructure problem solver for any outdoor public space; improves traffic flow and attracts positive interaction
- Connects users to the value of green power and your organization's concrete commitment to sustainability

601 Davisville Road, Suite 210
Willow Grove, PA 19090

Phone 267-419-8496
Fax 215-565-2746

info@gosunbolt.com
GOSUNBOLT.COM

CAMPUSXL DATA SHEET



DIMENSIONS

- Canopy height (high side): 8'3½"
- Canopy head clearance height (low side): 6'11¾"
- Bench seat (1): 4'6" W x 1'2½" L
- Bench footprint (1): 4'6" W x 1'0" L
- Table top: 4'6" W x 3'6" L
- Table footprint (with benches): 4'6" W x 7'0" L
- Canopy: 6'7" W x 11'0" L

STRUCTURE

- 100% powder coated structural steel
 - ASTM A-500 Grade B structural steel: horizontal tube, vertical tube, and solar canopy supporting tube; thickness: ¾"
 - ASTM A-36 structural steel: bench enclosures, miscellaneous supporting components; thickness: ¾"
 - A1011 CS Type B steel sheet: bench enclosure access panel; thickness: ½"
- Wood table & bench tops: ipe and perforated steel
- Wind speed rating: 90 mph self-ballasted (no surface attachment required)
- Durable industrial strength construction with easy to clean surfaces
- Seats four comfortably with a minimum 24" centerline distance between any two parallel seats
- Total weight: 1,450 lbs (including electrical components and concrete ballast block)

MONITORING & METERING

- User monitoring/meter: MidNite Solar battery capacity meter
- Includes RM2 meter systems for current parameters
- Optional upgrade for comprehensive charge controller monitoring and control via ethernet port and manufacturer's web portal
- Customized external ethernet port available

SECURITY

- Robust ballast mount system minimizes movement
- Additional "anti-vandal" surface attachment options
- Robust, heavy gauge steel components; inherently vandal-proof
- Tamper resistant hardware and fasteners

WARRANTY

- One year warranty on installation
- Twenty-five year warranty on solar panel power output
- See individual component warranties

SOLAR CHARGING SYSTEM

- Solar array capacity: 1kW DC
- Four 120V traditional electrical receptacles
- Eight USB charging ports
- Battery: 225 amp-hour sealed gel valve regulated lead acid (VRLA)
- Battery bank voltage: 12.0 volts DC
- Inverter: Morningstar SureSine300
- Charge controller: Morningstar TS-MPPT-45 (maximum power point tracking)
- Battery replacement cycle: five years/1000 cycles (typical)
- All electrical and structural steel components bonded to NEC compliant earth grounding electrode (ground rod)

SOLAR POWER SYSTEM

- Design autonomy: three days
- Design depth of discharge: 50%
- Daily energy production: 3,800Wh¹
- Design location: Philadelphia, PA

OPTIONS

- Table and bench top material and colors
- Wide range of steel powder coat colors
- User logos or advertiser/sponsor branding
- Plug load monitoring system

- Ask us about quantity discounts
- Sunbolt qualifies for a 30% Federal Business Energy Investment Tax Credit (ITC) for tax paying individuals ^{2,3}
- Sunbolt qualifies for Federal MACR accelerated depreciation for a tax paying business entity ⁴
- Financing available

1. PV Array Daily Energy Production with average irradiance for Philadelphia, PA in June.
 2. Consultation with a tax advisor recommended.
 3. http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US02F
 4. http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US06F



Sunbolt Solar
601 Davisville Road
Willow Grove
Pa

Quote

Valid Until:

Quote Number : 301079900009609117

BILL TO:

Armin Yeganeh/Virginia Tech
Blacksburg
Virginia
United States

SHIP TO:

Armin Yeganeh/Virginia Tech
Blacksburg
Virginia
United States

Account Name:**Virginia Tech**
Contact Name:**Armin Yeganeh**

Quote Stage:

S.No.	Product Details	Quantity	List Price	Total
1.	Campus XL Solar Charging Work Station	2	\$ 14,950.00	\$ 29,900.00
2.	Shipping Quote Estimated Shipping	1	\$ 1,700.00	\$ 1,700.00
			Sub Total	\$ 31,600.00
			Tax	\$ 0.00
			Adjustment	\$ 0.00
			Grand Total	\$ 31,600.00

Terms and Conditions

Terms and Conditions
Quote Includes:
Fully commissioned solar table charging stations.
Site assessment.

50% Deposit Required to Begin Manufacturing Process along with signed Sales Agreement