

The Sustainability Fund Project Application

Background and Context:

The NCSU Sustainability Fund Advisory Board announces the second annual request for proposals to advance sustainability on campus. This RFP is for projects that have high immediate impact or for longer-term projects that have significant potential for high impact. Projects can focus on education, outreach, infrastructure or any other component of campus sustainability. Examples include workshop development and sponsorship, symposium development, projects aimed at some aspect of sustainability, pilot projects to demonstrate potential for successful use of longer-term funding, large-scale infrastructure improvements, or other creative uses of these student-fee derived funds. Faculty or staff directed projects are appropriate if accompanied by a statement indicating how students will participate in the project or how students will benefit from project completion. Students are encouraged (but not required) to develop projects in conjunction with a faculty mentor or advisor. Priority will be given to projects with matching funds from other public or private sources. Letters of support from advisors and partners are strongly encouraged (letters of support from additional funding partners are required).

Proposals are due February 27, 2015. Funding decisions will be made by May 1, 2015. Projects begin July 1, 2015. Mid-year reports are Due December 1, 2015 and final reports are due by June 15, 2016.

All materials must be submitted electronically. Please complete the following information:

Application Date:

Project Title: Central Campus Solar Power Generator & Student Lounge

Total Requested Amount:

*Total available for funding is \$120,000 for all projects in the current funding cycle. Individual project funding amounts will vary depending on number and scope of projects funded. In exceptional cases, funding renewal will be considered with re-application.

Applicant Information

Name of Primary Contact:

Please mark your status with an "X": Student Staff Faculty

Campus Affiliation(Name of Organization, Department, or Office): NC State Stewards

Email Address:

Cell and/or Work Phone:

Campus Mailing Address:

If you are a student, please provide the following information:

This project is solely my own **OR**

× This project is proposed on behalf of (student org., campus dept., etc.):

Name of Faculty or Staff Project Advisor (if applicable):

Faculty or Staff Project Advisor Contact Information:

Email Address:

Campus Address:

Phone Number: Day-time/Work:

Cell Phone:

Please organize your proposal into the following 8 sections and answer the prompting questions where applicable. Total proposal length should not exceed 6 pages (1 inch margins, 11 point font). Additional documentation (e.g., letters of support, maps, drawings, etc.) should be submitted as appendices and clearly labeled to aid committee review (does not count toward 6 page limit).

Please include a bulleted list of any attachments (including file names) here:

- Quote from Florian Solar (file names are the same as the names)
- Solar Charging Station Tabling Event
- Florian Solar Canopy Example (*note-these are simply to give a basic idea of the structure)
- Solar Canopy Example 2
- Frequency of Use Pie Chart
- Survey

Please email your application materials to dasa-sfab-chair@ncsu.edu. Please include “Sustainability Fund Application” in the subject line. You will receive electronic confirmation that your materials have been received.

Please review the application materials and online content carefully. If you still have questions, please email the Fund Advisory Board Chair at dasa-sfab-chair@ncsu.edu with your specific question, or feel free to call 248-417-8343 with any questions.

1) Project Description:

Provide a 1 - 2 page summary of your project with enough detail that reviewers will clearly understand your project goal(s), your approach, and how you expect your project to impact some aspect of sustainability on campus.

Last semester, Kathleen Ruppe, Associate Director for Central Campus, briefly mentioned during a meeting with the NC State Stewards that it could be nice to have a source of emergency power for students to charge their communication devices in the event that NC State lost power. Which, coincidentally, did just happen with the most recent snow. The NC State Stewards is a student group advocating for sustainability across campus and is supported by the Office of Sustainability. The Energy Group within the NC State Stewards decided that Kathleen’s idea would make for a good project fit and decided to pursue it.

As we began to look at the idea of providing emergency solar power, we realized that it would make more sense, for a number of reasons, to provide students with access to outdoor solar power year-round. That inherently includes the times when NC State loses power and students have no other option for charging their devices in order to communicate with family and friends. We then faced

questions like: is there a need for this? where should we put it? and what would “it” look like? Through a site evaluation we identified the trio of picnic tables outside of Tucker as a good location for an outdoor charging station. We then met with Kathleen Ruppe and the University Architects Thomas Skolnicki and David Josephus, to identify the project’s next steps. The primary concerns that were raised were making sure that the structure fits the space, the structure is up to code, and there is demonstrated student interest.

The Energy Group put together a small solar power charging station and held a tabling event to gather interest for our project and to launch our survey. We then sent out a survey to determine student interest and received feedback from 120 students. 78.1% of students said they would use a solar charging station outside of Tucker weekly or daily. This demonstrates strong student support for the project. We also found that students currently feel the area is neither functional nor well designed (i.e. the picnic tables are uncomfortable). 94.1% of respondents cite the lack of shade and electrical outlets as factors that influence their use. We received numerous comments that our project would be a good way to improve it. Here is a quote from one student- “I would [use] the space so much more if this was available. It would be great because there are currently no places on campus that really support outdoor technology study.” Based on student feedback and the University Architect’s suggestions we decided that a solar canopy would be the best structure to build (see attached examples).

We identified a solar canopy designed by Florian Solar as the ideal structure to provide students with shade and access to power outdoors. The structure will be primarily constructed of painted metal and designed to fit the space. Thomas Skolnicki has approved the basic structure and will work with us once the project is approved to ensure that the finished product is aesthetically pleasing. The power output will be around 2 kW, depending on weather conditions. That means the structure will be able to handle the demands placed on it by numerous students charging their phones (5 watts), laptops (60 watts), and tablets (15 watts) all at once. The students will have access to electrical outlets as well as USB charging stations. These outlets and charging stations will be placed in areas optimal for student use. Thomas Skolnicki suggested that we run wires under the brick from the canopy, up through the middle of the picnic tables, and give students access to power where they sit. It will also have the capacity to support larger electronics that RAs may use for programs such as space heaters, TVs, or even refrigerators and freezers. It will allow students to work on homework outside without being limited by their laptop battery, play speakers when they are lounging outside and playing volleyball, and support the numerous events that are held in the Tucker/Owen beach like the annual IFC Chill-n-Grill which caters to hundreds of students. Having an outdoor, shaded power source will revolutionize the area in so many ways that it is hard to imagine them all.

Once we had identified that students want this and had received support from the University Architect, we reached out to the administrators who would be involved with actually building and maintaining the structure. We identified Peter Fraccaroli as someone to loop in because he is one of the main administrators necessary for this project to be approved. Peter guided us through the necessary actions we need to take in order to ensure his approval. He then offered to guide us through the implementation of the structure once the funding awards have been made because he has considerable experience with project management and implementing similar projects around campus. Pete also said that Campus Life would maintain and perform any servicing on this structure once it is built. One task he mentioned is to identify any subterranean obstacles like electrical lines that would impede the structural footings. Pete will work with us to avoid any of those obstacles and offered to go to the site

and help us physically dig the holes where the footings will be to ensure there are no surprises. Florian Solar's canopy will also be designed by a certified engineer. It is rated to withstand a 45lb snow load and 125lb wind load. Pete said that both of those values are sufficient and will not impeded this project's progress. Finally, he said that the electricians on staff at NC State would perform the electrical work required to make the structure function as a charging station.

This structure is also a great opportunity for NC State to showcase that it is a leader when it comes to sustainability. The university's Campus Environmental Strategic Team has identified several goals including "establish[ing] a campus culture of sustainability." They also believe that "the elements of sustainability should grow in ... residence halls.. and the wide range of activities that constitute the student experience." This project fits both of those descriptions to the tee especially considering that a secondary goal of this project is to promote sustainability around campus and educate students about solar power. One of the respondents to our survey said "...a plaque of some sort explaining the technology of the structures[sic] would be really cool." We plan to hold tabling events that educate students about the solar structure and teach them about solar power. It is also important for highly visible projects like this one to be approved and completed because it makes NC State more attractive to motivated high school seniors. In a national review of 10,000 students 61% said a college's commitment to sustainability would contribute to their decision to apply or to attend a school¹. This highly visible project that could be completed by the beginning of the next school year would also show that the Sustainability Fund is truly improving campus and student life while promoting sustainability around campus.

The Energy Group of the NC State Stewards has identified a strong need for improving the space outside of Tucker by providing an outdoor solar power charging station through a survey and speaking with departments such as Campus Life and University Housing. We identified a company, Florian Solar, that would build and install a structure to provide shade and solar power to students in the form of electrical outlets on a solar canopy. Finally, we have support from Kathleen Ruppe, Associate Director for Central Campus, Thomas Skolnicki, University Architect, and Peter Fraccaroli Director of Facilities, IT, and Asset Management, to move forward with this project and request funding from the Sustainability Fund.

2) Anticipated Outcomes/Impact

What outcomes do you anticipate? How will your project improve student life, infrastructure, education, outreach, operations, or other aspects of sustainability? How will you educate the campus community about your project?

This project will result in a structure that will provide shade, charging outlets, and foster the Central Campus community. This pavilion will improve student life by providing students who need to use technology for their work with the ability to study outside, a feat currently not possible due to the lack of electrical outlets outside. Also, there is not currently a spot for numerous students to charge their devices for communication in case NC State loses power and this structure would address that need. The campus community will be educated about this project through its presence in a highly trafficked area, tabling events such as the one we had to kick-off our survey, and word of mouth. We

¹ <http://www.princetonreview.com/college-hopes-worries.aspx>

will also write an article for the Technician, put up ebillboards in Tucker, Owen, and the FYC building, and create bulletin boards in-a-bag for Tucker and Owen RAs educating students about our structure and the benefits of solar energy.

3) Project Benchmarking & Innovation

Have similar projects been implemented on other campuses? Why should this be done at NC State?

The Solar Pavilion in the Triad has a few similarities to this project. It is different because this structure will provide power to many more students at once and is in a much more trafficked area. This project should be implemented because there is a need for outdoor power for students to study and for there to be shade over the already existing picnic tables. In addition, Central Campus is a densely populated area with five large residence halls immediately surrounding the site of this project; therefore, this pavilion would serve the needs of a large percentage of the NC State community.

4) Metrics for Assessment

How will you measure and evaluate your project's success?

To measure how effective the Solar Canopy is we will identify how often the structure is used and if it is able to accommodate the demands placed on it. We will physically count the number of students that use the structure as well as how many devices (and the time each student spends charging said devices) the structure charges. A secondary goal of this project is to raise awareness for, and expose students to, sustainability initiatives around campus and educate them about the solar power. To measure success on that front we will determine whether or not more students are cognizant of sustainability initiatives around campus (i.e. the Sustainability Fund) and if this structure has had any impact on their knowledge and views towards sustainability (i.e. do they know more about solar power now than they did before the structure was built) by sending out a survey.

5) Cost Savings

Will the project result in cost savings? Yes No

If yes, what is the payback period?

This project will result in minimal cost savings. Payback period would be determined by how many students use the structure, instead of the residence hall, to charge their devices.

6) Broader Vision

What potential does this project have for long term benefits to the campus community? Is there potential for your project to be scaled for broader community application?

This solar structure will provide students with an outdoor lounge and workspace for years to come. Residents from Tucker, Owen, and the Tri-Towers would have immediate access to the Solar Canopy, as well as other students choosing to use the space to study or socialize. The creation of a solar canopy that draws a multitude of students will allow the Central Campus community to develop both socially and intellectually. In a recent survey of incoming NC State freshmen, 62% stated that they took

sustainability into account when choosing to attend NC State. Based on this statistic, it is reasonable to say that showcasing this solar project will play a positive role in new student recruitment. Attracting motivated high school seniors is key to improving the campus community. There also exists the potential for development of additional outdoor solar charging stations in a number of locations such as the West Campus residential community and Centennial Campus. The creation of outdoor solar charging stations will weave sustainability into everyday student life here at NC State and contribute to the university's goal of ensuring an environmentally and socially sustainable future.

7) Project Milestone

Indicate your major project milestones including dates (month/year) of expected completion.

- February 2015- Submit Sustainability Fund Application
- June/Early July 2015- Have final designs approved.
- July 2015- Break Ground and begin installation of the Florian Solar Canopy.
- Early August 2015- Wire the electrical system and have the Solar Canopy ready to be used.
- Late August 2015- Hold tabling events and kick-off sessions for the Solar Canopy while welcoming new students to NC State.

8) Project Budget & Justification

What is the total project budget? What is your plan for sustained funding? *Please include a detailed budget that includes each of the following categories: personnel, supplies and materials, travel, and other.*

If project receives funding, applicants will be expected to report project status to the Sustainability Fund Advisory Board and notify the Board of any major changes in scope. The Board reserves the right to discontinue the funding of any project if the project is determined to be unattainable in the time frame or deviating too far from its original funding purpose. It is the duty of funded projects to acknowledge funding from the NCSU Sustainability Fund through available channels.