

# Proposal Details

## Kebreab Ghebremichael

### Section 1: Summary Information

* <b>Project Title:</b>	Campus Recreation Carbon Footprint Reduction Project
* <b>Duration (months):</b>	12
* <b>Total Budget (\$):</b>	\$68,000.00
* <b>Requested SGEF Funds (\$):</b>	\$68,000.00
* <b>Matching Funds (\$):</b>	\$0.00
* <b>Proposed Starting Date:</b>	11/1/2014

### Section 2: Applicant Information

	Full Name	Unit/Department	Phone	Email
* <b>Principal Investigator</b>	Adit Patel	Patel College	407-920-75	aditp@mail.usf.edu
<b>Investigator 1</b>	Aaron Craig	Campus Recreation		acraig2@usf.edu
<b>Investigator 2</b>	Chris Ilse	Physical Plant		cilse@admin.usf.edu
<b>Investigator 3</b>				
<b>Investigator 4</b>				

### Section 3: Project Description

#### \* **Project background and purpose (reasons motivating request) (Max 500 words)**

Being "green" is more than a way of thinking; it is an identity and a way of life. It is being conscious of our impacts and actively attempting to reduce those impacts and change the behavior that caused them. This identity is as strong as the culture that supports it. Over the last several years, the University of South Florida has commenced on an arduous journey to redefine itself as a green campus. Many projects have been successfully implemented such as Campus Bike Sharing and Parking Garage Sensors, but they have been unable to galvanize the students enough to create a culture that can grow and maintain this new found identity. A lack of consolidation is not only jeopardizing past projects but it will jeopardize future projects. A focus on creating this culture is of utmost importance because the actions of the student can greatly affect the viability of this green identity that USF is striving to accomplish. In an attempt to help foster this culture, this project will look to consolidate students under one common goal of reducing this campus' carbon footprint. In conjunction with Campus Recreation this project aims to increase the well-being of USF students as well and enlighten them on the benefits of sustainability in a unique way that will create a sustainably minded culture. This project aims to engage the students and serves as a platform to illustrate the power of effective collaboration. Additionally it will serve as a model for future projects (i.e USF Health wellness center project, Public Private Partnership with USF Housing) that may also be environmental conscious.

#### \* **Project activities (Max 250 words)**

In order to reduce the carbon footprint on campus; this project will be implementing new exercise equipment that will decrease the energy costs of campus recreation and also reduce the greenhouse gas emitted from the usage of cardiovascular equipment (i.e., treadmills, and bicycles). After implementation, savings will be recorded in real-time and displayed on Campus Recreation's website through social media, and kiosks and digital screens in the cardiovascular fitness area at the Campus Recreation Center. A marketing campaign led by Campus Recreation in close collaboration with Student Government and the Student Environmental Association will create a campus-wide Envirothon. In this, students will participate in a multi-day event in which they will pledge to only utilize the new and pre-existing equipment. Throughout this event the savings will be recorded and upon ending, the data will be analyzed to determine the impact. The event will aim to educate and motivate students to be environmentally conscious while being physically active in the Campus Recreation Center. This event will take place annually as a reminder of how USF can use cardiovascular equipment to solidify its green identity. More importantly, the marketing campaign will continue throughout the year to reinforce the concept.

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#### **\* Project results (Max 500 words)**

After implementation the Co2 savings will be recorded and displayed in real-time on Campus' Recreation's website. The goal of this project is hold a year study to observe the savings that are achieved. Since this is a pilot for larger scaled projects metrics need to be established to quantify success. For the project to be deemed successful two aspects will be observed; the first component looks at usage data and the second component focus on carbon footprint reductions. If usage data increases are observed, then this translates into more student engagement, which is one of the main goals of this project. The new exercise equipment will be compared with its less sustainable counter-part. The amount of green-house gas emitted for both new and existing equipment will be charted and at the end of the year if significant reductions are observed than this pilot will can be deemed successful. Overall the project results will be successful if they can increase student involvement through increased participation and more education.

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<b>* Annual Energy Savings</b>	210,411 kWh
<b>Annual Cost Savings</b>	\$23,145.21
<b>Return of Investment in %</b>	0.34
<b>Annual Green House Gas Reduction</b>	0.00

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#### **\* Project Sustainability (Max 200 words)**

This project focuses on two goals the long-term sustainability of the students and also increasing savings. By implementing equipment that runs on significant less wattage, Campus Recreation's annual energy costs and carbon footprint will be reduced. By focusing on student engagement, a culture will be created and strengthened which can encourage and influence students to become aware of and participate in this "go green campaign." Analyzing the usage data for the year 2013-2014 spanning from July 2013-Jun 2014 the average number of hours for the regular bikes per year was 59.5, the average number of hours for the recumbent bikes was 86.17, and the average number of hours for treadmills is 91.1, During the study, these averages should significantly increase as more students become sustainably minded and as equipment usage increases. As usage of these equipment increases the carbon footprint of campus recreation will decrease. The energy savings will be 866.332 kwh, the annual savings will be 23,145.21 dollars and the Co2 savings will be 3.017 metric tons annually. The savings was calculated using the cost of energy of 8.5 cents per kw/hr and the Environmental Protection Agency's Co2 emissions conversion factor:  $6.89551 \times 10^{-4}$  metric tons CO<sub>2</sub> / kWh

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### **Section 4: Workplan and Budget Details**

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#### **\* Detailed work plan/schedule of activities (Max 250 words)**

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The time table to fully implement the equipment will be approximately 20 weeks. Campus Recreation's pre-existing outlets must be changed with new outlets that can optimize the function of the equipment and these new outlets must be certified for compliance. Therefore a Space Impact Form has already been filed with FPC and is waiting to be assigned an electrical engineer. Additionally, contact has been made with TECO to gain necessary approvals and permits to do electrical work. Pending approval of this proposal the marketing campaign will immediately begin to entice the students to participate in the Enviro-thon. The event is projected to be held in the spring semester, following spring break.

**\* Budget breakdown**

Category	Request from SGEF	Applicant contribution	Total
<b>Personnel (include all involved)</b>	\$0.00	\$0.00	<b>\$0.00</b>
<b>Equipment</b>	\$39,314.00	\$0.00	<b>\$39,314.00</b>
<b>Supplies/Materials</b>	\$0.00	\$0.00	<b>\$0.00</b>
<b>Contractual</b>	\$11,869.26	\$0.00	<b>\$11,869.26</b>
<b>Construction</b>	\$16,816.74	\$0.00	<b>\$16,816.74</b>
<b>Other (specify in budget justification)</b>	\$0.00	\$0.00	<b>\$0.00</b>
<b>Total Project Cost</b>	<b>\$68,000.00</b>	<b>\$0.00</b>	<b>\$68,000.00</b>

**\* Budget justification (Max 250 words)**

The proposal is asking for a one-time payment from the Student Green energy Fund as this project will be able to function without having the need to request additional amounts from the council. Majority of budget will be used on the equipment itself as it holds the bulk of the costs. The requested amount for construction covers installation and delivery. The contractual requested amount will cover the full-service and warrant in case parts or equipment ever become faulty. The equipment amount will cover the purchase of six heavily utilized types of exercise equipment that is currently being used in a less sustainable fashion (i.e., treadmills and bicycles). The Campus Recreation Department will maintain this project with their faculty so no additional personnel costs are required. The price of parts and supplies are included in the equipment price, so no additional materials are needed. The return of investment of this project goes beyond the monetary savings and amount of green-house gas that is reduced; its ability to strengthen and create a sustainable minded culture is invaluable.

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Added By	Vote
Stanley M. Kroh	Yes
Ken Christensen	No
Lee Stefanakos	No
Christian Wells	No
Margaret Rush rush@epchc.org	MayBe
Jochen Eckart	MayBe
Added By	Comments
Stanley M. Kroh	Great Idea! Project Team should show Peronnel Costs as Applicant Contribution. I like the idea of combining sustainability and health. Project has the potential to reach new audiences.
Ken Christensen	It is very unclear what it being proposed. The best that I can determine, the PIs seek to replace exercise equipment in the USF Gym with new equipment that include electricity generators. That is, when a person runs on a treadmill (or spins on a cycle) they will be generating electricity. The amount of energy that a single human can produce is miniscule and the payback for any new equipment would be many 10s of years. For a relevant reference see here: <a href="http://engineering.mit.edu">http://engineering.mit.edu</a>

	<p>/ask/could-we-use-exercise-machines-energy-sources I encourage the PIs to “do the numbers”. What is the cost the new equipment? How will the equipment be connected to the utility or local grid so that the electricity generated can be used? What is the expected lifetime of this equipment? How much energy will be produced in the lifetime of this equipment assuming some reasonable daily utilization (of the equipment). The proposal shows a \$23,145.21 (21 cents precision, wow!) yearly cost savings. I do not see how this savings is calculated. I rate this proposal as non-competitive.</p>
Lee Stefanakos	<p>This project is rather abstract and will not really produce tangible results. I think projects that address specifically energy efficiency, energy conservation and reduction in environmental pollution would be more appropriate at this time. After all the other needs have been met, consolidation and more detailed accounting may make more sense.</p>
Christian Wells	<p>I don't understand what is being proposed exactly. It sounds as if the aim is to replace existing equipment with equipment that requires less energy. Or, perhaps this is a project to install equipment that is powered partly by human kinetic energy? (We attempted to install treadmills that took advantage of this technology several years ago, but met with resistance at the time with Campus Rec.) I think this could be a good idea, but the proposal is very unclear in details.</p>
Margaret Rush rush@epchc.org	<p>I think the concept is great. Finding ways to save energy in exercise facilities is very sensible and appeals to a healthy society: I am just not sure how this project accomplishes this energy savings. You calculate a large annual savings of over 210,000 KWh, but do not explain how this is accomplished, more energy efficient equipment? I need some more explanation as to how you are achieving these savings.</p>
Jochen Eckart	<p>The energy saving calculations of the project do not seem to be reliable. I agree that there should be more efficient ways to save the same amount of energy.</p>
Barbara S. Donerly	<p>I believe the proposer has been working with Campus Rec and that the energy produced offsets energy used by other machines. This is a good student engagement and learning showcase.</p>

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