Proposal Details

G Hendrix

*** Project Title:**	Campus Rec Boiler
*** Duration (months):**	8
*** Total Budget ($):**	$145,000.00
*** Requested SGEF Funds ($):**	$145,000.00
*** Matching Funds ($):**	$0.00
*** Proposed Starting Date:**	2/20/2017
PI Graduation Date (if applicable):	5/5/2017

Section 2: Applicant Information

	Full Name	Unit/Department	Phone	Email
*** Principal Investigator**	Alex Kirk	Integrative Biology	7723413089	akirk@mail.usf.edu
Investigator 1				
Investigator 2				
Investigator 3				
Investigator 4				

Section 3: Project Description

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

Campus Recreation's swimming pool is used quite often by USF students and faculty alike. Often it's only complaint is the inconsistency of the water temperature. This is due to the fact that the water is heated and then pumped almost a mile to get to the pool's system. I propose that not only do we eliminate the need of long distance pumping, but we also increase the efficiency of the boilers being used. This will eliminate costs for electricity to pump water across campus, and also reduce emissions by switching to a condensing boiler.

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

The project includes installing a condensing boiler outside of the campus recreation pool area. There is already sufficient space, and the operations team at REC are working with us in optimizing the placement of the boiler, the electrical systems, and the natural gas line. Electrical panels have already been investigated to verify there is space for the project, and a natural gas source has been located.

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

The result of the project will be more efficiency for USF and more savings as well. Any issues with distant pumping will be eliminated, such as possible heavy metal seeps or pipe bursts. The energy to heat the water to 220F (so its still warm when it gets to the pool) will also be eliminated. The CPT boiler that is currently used has an efficiency of about 78%, the new condensing boiler used that escaped heat to recirculate and heat water even more efficiently at 98%. Although the time will vary yearly, a reasonable estimate is that the pump will be running on average 50% of the year.

*** Outcomes of the project (Max 250 words)**

Eliminating the cost of electricity to pump the water, with the increased 20% efficiency of the boiler system, this equates to 131,000 kWh saved per year in electricity, and 20,405 therms per year saved in heating. Converting these both to metric tons of CO2, this equates to about 200 tons of CO2 saved per year, using it only 50% of the time.

*** Annual Energy Savings**	131,400 kWh
Annual Cost Savings	$14,454.00
Return of Investment in %	0.10

Annual Green House Gas Reduction 0.00

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

The unique nature of the project also adds heat into the savings, measured in therms, which is 20,405, this also adds another $11,223 to the annual cost savings, totaling to $25,633. The Return on Investment in $ would increase to a rounded 0.17% and the greenhouse gas reduction is estimated to be 400,000.

Section 4: Workplan and Budget Details

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

One contractor, AMSCO, has given us quotes, supplied below. We plan to have 2 more quotes with the next 2 weeks. Next we need to design the piping and confirm the location of the boiler and electric panels/wiring. This will be about 2 months in total. The review process should take another 1 month. A final quote will take about 2 weeks. Ordering all equipment, delivery, and consolidation will be about 3 months. Finally construction will be final at about 1 month. This gives a total of 8 months.

*** Budget breakdown**

A