

USF Student Green Energy Fund Council



Friday, February 16, 2018 – SVC 1073

Time: 1:00 pm – 2:30 pm

Meeting Minutes

In attendance:

Council Members

Barbara Bushnell, Raymond Mensah, George Philippidis, Kebreab Ghebremichael, Nainan Desai, Robin Rives, Gviana Goldberg, Drew Templeton, Aladdin Hiba, Brian Mwaliko (Alternate) and Harold Bower (Chair)

Absent: Sujit Chemburkar, Chris Marks (Alternate), Lynecce Romelus, and Maria Rodriguez

Observer(s): Melody Rainey and Gidi Hendrix (Observers)

First Order of Business:

The previous meeting minutes for the meeting held February 16, 2018 were approved. All meeting minutes are posted for the public at <http://www.usf.edu/student-affairs/green-energy-fund/meetings/minutes.aspx>.

Financial Update:

Cash balance as of 04/17/2018 is \$2,429,654. Active Projects RSA - prior year awards (\$1,335,334), Active Projects RSA - FY 17/18 awards (\$816,466), projected operational expenses (\$8,894) and the total projected expenses of (\$2,160,693) brings the projected available cash to \$268,960. The FY2018 remaining estimated fee collection is \$0. The 10% contingency (\$102,648) and a 5% reserve of (\$51,324) brings the projected available cash to award in FY2018 to \$114,989.

Foundation Funds balance:

590077 (Student Green Energy Operating fund) - \$61

590082 (Carbon Offset Fund) - \$346

Public Comment

Sam Gibbons thanked the SGEF Council for their time.

Unfinished Business:

- None

New Business:

- **BSN LED Conversion Project Summary**

Since USF is a research university, the energy consumption of the campus is very high because the lights are on 24/7 in most research buildings. The main goal to be achieved in this project is to reduce the energy consumption by converting the existing fluorescent light bulbs at BSN building to LED lights, replace the ballast, and recycle the old lights. This energy reduction will help USF towards the greenhouse gas (GHG) reduction goals set by the President through the climate commitment (2008). Conversion from the existing 28 watts bulbs to 17 watts LED at BSN building could result in an energy cost savings of approximately \$38,000/year along with 337 metric tons of CO₂ equivalent (CO₂e) every year. Implementing the project across the USF campus would result in significant savings for the university and community.

This project exceptionally aims to reduce the energy consumption on campus by targeting campus lighting. LED lights are efficient because they consume less energy as compared to fluorescent and incandescent lights while providing the same illumination levels. Utilizing LED lighting throughout campus will reduce the lighting energy demand by approximately 40%. Moreover, GHG will be economically reduced along with energy consumption. The proposed LED bulbs (17 watt - T8 LED) with 2100 lumens have a lifetime of over 70,000 hours. The 100% lighting upgrade to LED lights for BSN building would result in a direct reduction in electricity costs of \$38,000 annually with an initial capital investment of \$255,000. An annual saving of approximately 479,775 kWh from the BSN building alone will reduce emissions by 337 metric tons of CO₂e. Such a project will have a simple payback period of about 6.6 years.

This project will be divided into phases to reduce the amount of workload at one time, yet help the goal to be achieved in a timely manner. This project will be a collaboration between USF Facilities Management and USF students. Students will survey the old College of Business building to record the quantity and type of bulbs present in each area and verify that lighting standards are being met. A re-design will not be required, especially since the proposed light bulb will fit in the existing light fixtures. Building managers will be informed prior to surveys and light replacements to minimize disturbances to offices, classes, and other work areas. The impact on these areas will be minimal since the replacement process will take approximately 30 minutes per light fixture including waste disposal. Students will also work with Facilities Management during the bid and selection processes. Facilities Management will provide the project management and training to the students.

There will be no effect on the long-term maintenance of light fixtures since the LED bulbs last much longer than the fluorescent bulbs. Facilities Management will be in charge of replacing and recycling old LED light bulbs at the end of their life.

Total project cost and requested from SGEF will be \$255,800.

Council agreed to let the project summary move forward to proposal.

- **Campus Food Waste Recovery Project Summary**

(See attached PowerPoint Presentation)

The purpose of this project is to pilot test a scalable program that will provide the USF community a place to support food recovery and zero waste initiatives by using anaerobic biodigesters. In partnership with USF Aramark Dining Services, the project will divert edible food to USF Feed-a-Bull or local charities and inedible, post-consumer food to four pilot biodigester sites on campus that will be overseen by USF Facilities and the project team. Outputs from the biodigesters (liquid organic fertilizer and clean methane (CH₄) gas) will be used by USF Facilities and Athletics to manage campus grounds. Goals of this project include reducing food waste at the source to minimize methane gas emission, recovering food waste to support food insecure students and community members, and recycling food waste to generate renewable energy sources.

This project proposes to divert food waste from the landfill which will support hunger-relief efforts and reduce methane gas emission; this would provide an innovative way to garner credits in the AASHE STARS report. Although similar strategies are used on other campuses, food waste is currently not incorporated in the USF Campus Recycling and Energy Conservation Program nor are there food recovery efforts that remain on campus that generate renewable resources. This project proposes food recovery on campus or within the local area to support charities, supported by faculty and staff, and reduces carbon footprint in a closed loop system.

We have USF Aramark's support in working with dining sites to provide food waste, which the project team (OPS students) will coordinate pick-up and drop off to the biodigesters. USF Facilities has already completed a space impact form to build the double IBC tank biodigesters (request approved), and we have met with Suchi Daniels and Nainan Desai to discuss the logistics of implementation of the biodigesters. We have discussed the four pilot sites with USF Facilities: OPM100 area (2), USF Botanical Gardens (already built), and USF Athletics area near tennis courts. Design of the biodigesters is provided by USF professor Dr. Thomas Culhane and in partnership with anaerobic digestion experts in the College of Engineering. We will also collect data from one compost site (already existing at OPM100 and managed by USF Facilities) to compare the feasibility of both options.

This pilot test relies heavily on a project team of students to do the literature review, preparation, data collection, pretesting, and implementation of a potentially campus-wide, scalable project. A major barrier is to coordinate the logistics of this project. However, we have an interdisciplinary team that is willing and capable of this endeavor, and this pilot test is meant to work out the kinks before it will formally be implemented campus-wide. The project will serve as a baseline measurement and foundation for faculty and staff to take over the project and incorporate into existing programs, e.g., campus recycling and energy conservation program, Aramark's Green Thread Environmental Sustainability program, etc. USF Aramark/Dining Services is willing to partner with other USF entities to recover pre-consumer and post-consumer food waste to be donated to charities or the campus biodigesters, and USF Facilities is willing to maintain and operate a larger scale food recovery program. Since USF Facilities already does an annual waste audit (which does not account for food), this pilot test also will provide pilot test measures to

include food waste in this audit. USF Departments and College of Engineering, Public Health, Sociology, Anthropology, and Patel College of Global Sustainability are all committed to providing continued support for this project. Other entities willing to support include USF Prevention Research Center, USF Athletics, and USF Office of Sustainability.

USF Aramark/Dining Services currently contracts with external companies to bring food waste (a portion, not all) to be composted. By creating a closed loop system of food waste recovery right on campus, USF Aramark/Dining Services can then contract with USF Facilities to recover food waste through the campus recycling and energy conservation program. That is, transportation of food waste from dining halls to external sites will be reduced and recovered on campus through the biodigesters to generate renewable resources to be used for campus grounds (carbon offset). USF Facilities is willing to maintain and operate a food waste recovery program; cost savings from getting rid of waste externally will enable them to hire more staff members to collect food waste and manage the biodigesters. The pilot test will provide data of the amount of clean gas and organic fertilizer produced, which will be potential costs saved because USF Facilities can reduce costs of purchasing synthetic fertilizers and replace propane gas with the clean biogas for various machinery such as golf carts or lawn mowers (reducing the carbon footprint). Additionally, the composting site will provide nutrient rich soil which USF Facilities plans to use for campus grounds or share with USF Athletics, which will support a healthier environment for turf, grass, and other recreational areas.

USF Athletics is also willing to partner in this project that potentially reduces the costs to export yard waste, which (any organic material) can be put through a biodigester to generate the outputs and reduce methane gas emission to the atmosphere. USF Athletics is estimating the cost of yard waste removal to be \$10,000 in 2018, and average fertilizer and chemical bill to total \$75,000 to maintain the athletic grounds; the biodigester outputs would potentially provide significant cost savings in this regard as well depending on the nutrient testing from the pilot test. The projected cost of this pilot test is about \$64,000, which includes all research/biodigester materials, student support, and development/implementation of a student educational campaign to achieve a zero-waste campus and adopt Sustain-A-Bull practices.

The council asked if Facilities has committed to purchase a tractor. Facilities would need to commit formally to the SGEF. The council asked about the \$50,000 to pay students. Most likely the amount will go down and is negotiable.

Council agreed to let the project summary move forward to proposal

- **BSF Exhaust Hood Retrofits Project Summary**

The fume hoods and the mechanical ventilation systems operate at high constant air flow rates at all times resulting in a very large energy consumption and consequently very large carbon footprint. Per Occupational Safety and Health Administration (OSHA) regulations, the exhaust hoods must exhaust air at a face velocity of 100 feet per minute across the face area of the sash opening. This air must be made up through mechanical ventilation system, where the air is cooled and dehumidified first and then reheated before introducing into the occupied space. In Tampa,

this simultaneous heating and cooling of outdoor air and then eventually exhausting it through the exhaust hoods goes on 24x7 and 365 days of the year. The potential to save energy, while complying with the regulatory and user comfort level standards, lies in controlling the air flow based on demand. This project will address 8 exhaust hoods in two BSF labs 357 and 363. It includes installation of one motion sensor for each exhaust hood, automating the sash closure when there is no motion detected, and installation of a variable flow control and monitoring system to vary the exhaust air quantity based on the sash opening and for thermal comfort needs of the space. The system will comply with the regulatory requirements and user comfort level standards. The 8 fume hoods when retrofitted with the variable air flow controllers will result in about 80% energy savings and a payback of 3 years. This project is modeled after a successful demonstration project completed on 2 exhaust hoods in BSF 151 lab. In addition, the project will also include digital screen displays of room condition on the outside of the lab, at the exhaust hood, and a room purge control with push button for a chemical spill inside the room.

- I. Annual eCO₂ reduction in Metric Tons: 288
- II. Equivalent number of trees planted: 7,467 seedlings grown for 10 years
- III. Equivalent number of cars removed from the road: 62 for one year
- IV. Equivalent amount of gasoline saved: 32,422 gallons
- V. Electricity savings: 387,162 kWh/year
- VI. Natural Gas savings: 13,211 Therms/year

Implementation will require issuance of Space Impact Request, construction design documents by an engineering professional to comply with the codes, review and permit issued by Building Code Official. Facilities Management will provide the project management while providing project management training to the students. Facilities Management Division has agreed to operate and maintain the system in the future. Annual cost savings for 8 hoods: \$ 27,114 Payback years: 3.4 years. ECS quote: \$56,493 Permit: \$500 Work by others: \$7,000 Engineering+TAB: \$10,000 Student Rate: \$6000 (for 1 year) Contingency: \$ 11,997 Total project cost: \$ 91,990 (Request from SGEF)

Council agreed to let the project summary move forward to proposal

- **RECs and Carbon Offsets PH2 Proposal**

(See attached PowerPoint presentation.)

The council asked if the purchase should be made equivalent to the years it will affect the climate action plan. The purchase will give LEED Silver certifications and benefit P3 Residential Dorm, the Hub, and the Fit.

Council voted and approved the proposal.

Activities Updates

- **Earth/Arbor Day**

Earth Day held April 17th and April 18th was a success with the Tampa campus students.

Arbor Day will take place April 27th at 10:00 am at the John and Grace Allen Building. Five trees will be planted and students are encouraged to participate.

Announcements

- **Summer Meetings**

It is difficult to get quorum during summer meetings. The council asked its members to try to come so that business can continue. The council decided and agreed to do an email polling a week before each monthly meeting to ensure quorum for each meeting.

Meeting adjourned at 2:45 pm.