

**Council Members Present: (via Zoom):**

Carlo Colella – Vice President for Administration (Chair)  
Scott Lupin – Assoc Dir., Environmental Safety, Sustainability & Risk; Director, Office of Sustainability  
Ann Tonggarwee – Deputy Chief of Staff, Office of the President  
Bryan Quinn – Director of Technical Operation, Department of Electrical & Computer Engineering  
Eric Wachsmann – Director, MD Energy Innovation Institute; Professor, Materials Science & Engineering  
Maureen Kotlas – Executive Director, Environmental Safety, Sustainability & Risk  
Tom McMullen – Special Assistant to the Provost for Facilities  
Colleen Wright-Riva – Assistant Vice President, Division of Student Affairs  
Mark Addy – Executive Director, Systems and Networking, Division of Information Technology  
Margaret Mothershed – Undergraduate Student Representative

**Guests Present:**

Javiera King – Administrative Coordinator, Office of the Vice President & Chief Administrative Officer  
Kathleen Kennedy – Assistant Research Professor, Center for Global Sustainability  
Ryna Yiyun Cui – Associate Research Professor, Center for Global Sustainability

Meeting Highlights

**Maryland's Climate Pathway – *Professor Kathleen Kennedy and Professor Ryna Cui***

Professor Kennedy and Professor Cui from the Center for Global Sustainability (CGS) provided an overview of Maryland's Climate Pathway Report (Appendix A). The report was published in response to the state of Maryland's climate goals to achieve 60% reductions in emissions by 2031 and a net-zero economy by 2045.

Key talking points include:

- An overview of all sectors of the economy and the percentage of emissions each sector needs to reduce to achieve the overall 60% emissions reduction by 2031. They provided some examples in each sector for how to achieve the proposed emission reduction goals.
  - Examples include:
    - Energy Sector: Boost renewable energy deployment and accessibility, for example through federal solar energy tax credits.
    - Transportation Sector: Reach 100% electric bus sale by 2025.
    - Industrial Sector: Switch fuel use in the cement industry away from coal.
- Without adopting new policies and changes proposed in the Climate Pathway Report, Maryland is only set to achieve a 51% reduction by 2031.
- In the report they proposed a cap-and-invest program that would apply to all sectors. This program would lead to a 4% emission reduction.
- Some time was also spent discussing ways to ensure that equity, accessibility, and health and wellness are being considered as the implementation plans/strategies are adopted for each sector.

- The presenters highlighted a new report called Maryland's Climate Pollution Reduction Plan.

Post-presentation discussion included questions about including innovation as a part of the report, turning policy into regulation, the cost to achieve reduction goals, and accounting for carbon sinks and land loss in the Forestry and Land Use sector.

### **Sustainability Fund Proposals Presentation – M. Mothershed**

Margaret Mothershed presented to the Council on the Sustainability Fund Budget and proposals (Appendix B). The Sustainability Fund Review Committee estimates having a revenue of \$650,000 and recommends funding for three proposals:

- *Algal Terp Scrubber: (\$49,540.00)*
  - Submitted by: The UMD Student Chapter of the American Ecological Engineering Society.
  - This project was awarded funds before COVID then experienced issues with overturn. The group wants to utilize algal turf scrubbers to reduce pollution in stormwater drainage. The system would be installed next to Terrapin Trail Parking Garage.
  - The Council **unanimously approved** this project proposal.
- *Incorporating Students in the Evaluation of Insect Feed as a Viable Methane Mitigating Supplement for the UMD Dairy: (\$44,906.00)*
  - Submitted by: Helen Craig, Graduate Student.
  - This project will incorporate cricket protein into the diet of UMD dairy cows to measure the relationship between insect-based feed and methane production. The Lamp lab will be taking the lead on this project and there are a few extension staff members in the animal science department who have agreed to help with the project.
  - The Council discussed research safety and if there were examples of other similar research being conducted elsewhere.
  - The Council **unanimously approved** this project proposal with the contingency that they submit a research procedure that addresses the safety of the UMD Dairy cows and students involved in the project.
- *Terrapin Works - PLA Scrap Stock Sheet Mold: (\$9,876.39)*
  - Submitted by: Terrapin Works, Engineering and Information Technology.
  - Terrapin Works 3D prints designs for students, classes, and clubs, operating in 17 labs with over 213 machines throughout the Clark School of Engineering. They are seeking funding to build a PLA Scrap Stock Mold which would allow them to melt and reuse their scrap plastic. They anticipate recycling at least 160 pounds of PLA waste yearly with the involvement of 20-50 students.
  - The Council had some discussion about the proper ventilation of the space and the cost benefit to recycling/reusing the proposed material.
  - The Council **unanimously approved** this project proposal with the contingency that the Department of Environmental Safety Sustainability and Risk must approve the installation site in order to address the council's concerns regarding proper ventilation.

### **Open Forum**

*Adjourn 12:00PM*

### **Appendices:**

*Appendix A: Maryland's Climate Pathway Presentation – Professor Kennedy and Professor Cui*

*Appendix B: Sustainability Fund Proposals Presentation*



**GRANT RECOMMENDATIONS February 2024**



# Sustainability Fund Budget for FY24



FY24 General Info		Expenses	
Fund Balance as of July 1st*	\$284,410	Sustainability Mini-Grants**	\$20,000
FY24 <b>Estimated</b> Revenue*	~\$650,000	Carbon Offsets for Carbon Neutral Undergrad Commuting**	\$100,000
<b>Proposals Received</b>	21	Grants Issued to-date	\$268,618.20
FY24 Total requested so far	\$1,657,001.59	Today's Grant Recommendations	\$104,322.39
FY24 Requests still pending	\$275,851	Remaining Balance if recommendations are approved*	~\$441,469.41

\*Estimated

\*\*Maximum allowed



## Projects Recommended for Funding



1. Algal Terp Scrubber
2. Incorporating Students in the Evaluation of Insect Feed as a Viable Methane Mitigating Supplement for the UMD Dairy
3. Terrapin Works - PLA Scrap Stock Sheet Mold



## Algal Terp Scrubber



**Requested:** \$49,540

**SFRC recommendation:** \$49,450

**Summary:** This project was awarded funds before COVID then experienced issues with overturn. The group wants to utilize algal turf scrubbers to reduce pollution in stormwater drainage. The system would be installed next to Terrapin Trail Parking Garage.



**Submitted by:** The UMD Student Chapter of the American Ecological Engineering Society



## Algal Terp Scrubber



- The Algal Terp Scrubber will be operated by undergraduate students and aims to enhance sustainable stormwater management practices on campus.
- It will be installed next to Terrapin Trail Garage and is estimated to mitigate 100.74% of the impervious surfaces of the garage, removing 15.754 lbs of Nitrogen, 1.57 lbs of Phosphorus, and 1722.5 lbs of sediment per year.
- The ATS will run for 6-8 years, the cost of deconstruction is included in the proposal.
- The site will also have educational signage that describes the ATS and its purpose.
- They have received a Sustainability Fund Mini Grant, Do Good Mini Grant, and a Facilities Fund Grant.



# Algal Terp Scrubber



<b>Funding Sources</b>	<b>Total Granted</b>
Student Sustainability Fund Mini Grant 2017	\$500
Do Good Mini Grant 2018	\$500
Student Facilities Fund 2018	\$105,086
Student Sustainability Fund FY2024	\$49,540
<b>Total Project Cost</b>	<b>\$155,626</b>





# Insect Feed as a Viable Methane Mitigating Supplement



**Requested:** \$44,906

**SFRC recommendation:** \$44,906

**Summary:** This project will incorporate cricket protein into the diet of UMD dairy cows to measure the relationship between insect-based feed and methane production. The Lamp lab will be taking the lead on this project and there are a few extension staff members in the animal science department who have agreed to help with the project.



**Submitted by:** Helen Craig, Graduate Student



# Insect Feed as a Viable Methane Mitigating Supplement



- Insect meal production has a lower carbon footprint than soybean meal production and cricket protein may reduce methane emissions in cattle up to 18.4%.
- Key Goals:
  - Conduct a nutritional assessment of cricket protein powder and soybean meal
  - Determine if partial substitution of soybean meal with cricket protein is a viable method of reducing methane emissions in living dairy cattle
  - Test the quality and quantity of milk produced before and after insect diet treatments
  - Compare the economic viability of insect protein as a cheaper alternative to a 100% soybean meal protein source.
- Two undergraduate assistants will be involved from start to finish, conducting a literature review, creating the experimental design, analyzing and modeling the data, etc.
- They have received \$30,000 from the Maryland Agricultural Experiment Station



# Insect Feed as a Viable Methane Mitigating Supplement



Expenditure	Unit Cost	Amount	Total Cost
Undergraduate Assistant Salaries and Fringe Benefits	\$15/hr and 6.4%	2	\$20,748
Travel and Lab Costs	\$25 per day plus \$0.08/mile and \$1 plus \$5 shipping per sample	56 trips, 144 samples	\$2,515
Insect Feed, Sulfur Hexafluoride, Misc supplies	\$20 per pound, \$595 per kg	-	\$20,683
Educational Materials and Conference Registration	\$0.50 per page, \$305 per student	100 pages and 3 students	\$960
<b>Total</b>			<b>\$44,906</b>



# Terrapin Works - PLA Scrap Mold



**Requested:** \$9,876.39

**SFRC recommendation:** \$9,876.39

**Summary:** Terrapin Works 3D prints designs for students, classes, and clubs, operating in 17 labs with over 213 machines throughout the Clark School of Engineering. They are seeking funding to build a PLA Scrap Stock Mold which would allow them to melt and reuse their scrap plastic. They anticipate recycling at least 160 pounds of PLA waste yearly with the involvement of 20-50 students.

**Submitted by:** Terrapin Works, Engineering Information Technology





# Terrapin Works - PLA Scrap Mold



- Main Outcomes:
  - Environmental Impact:
    - 160+ pounds of PLA waste reused
  - Teaching and Reduced University Costs
    - 20-50 students trained in PLA recycling
    - ENES100 classes would save \$500 in materials per semester
  - University Public Relations
    - Terrapin Works could replace virgin plastic material in trinkets distributed at tabling events
- The research and design of the PLA Scrap Stock Mold has already been completed. Students have designed tested two smaller versions of the mold.
- Terrapin Works estimates that that the devices will last over 10 years.



# Terrapin Works - PLA Scrap Mold



Item	Description	Cost
PLA Scrap Stock Mold Aluminium Material Stock	Material Cost	\$2,035.05
PSSM Stock Machining Operation and Hardware	Operator set up, operation, purchased components	\$866.34
Lab Oven	Commercial equipment acquisition cost	\$2,625
Oven Supplementary Equipment	Misc. supplies	\$100
Design, Training, Documentation, Curriculum Development	90 hours at \$25/hr	\$2,250
220V Electrical Circuit Building Upgrade	The TAP Building requires a 220V Power Source to run the lab oven	\$5,000
<b>Terrapin Works Allocation</b>		<b>\$3,000</b>
<b>Total Requested</b>		<b>\$9,876.39</b>