

Circular Plastics Challenge: UH Energy Transition Institute

Plastic waste in the environment is a societal problem! How can we solve it? The UH Energy Transition Institute (Shell founding sponsor) will award \$13,500 in prize money with a top prize of \$5,000 for ideas to improve plastics recycle and reduce plastics waste. Here is how:

1. Submit a written description of a new concept or idea and a plan for how it would be developed via email to uhenergy@central.uh.edu by 11:59 pm November 1.
 - a. Open to all UH students
 - b. Teams are strongly encouraged (faculty mentor allowed)
 - c. 12 pages maximum, written text and/or slides
 - d. Top 5 entries will present to a panel of judges @3:30pm on November 16, and awarded prizes during the Energy Night event that evening.

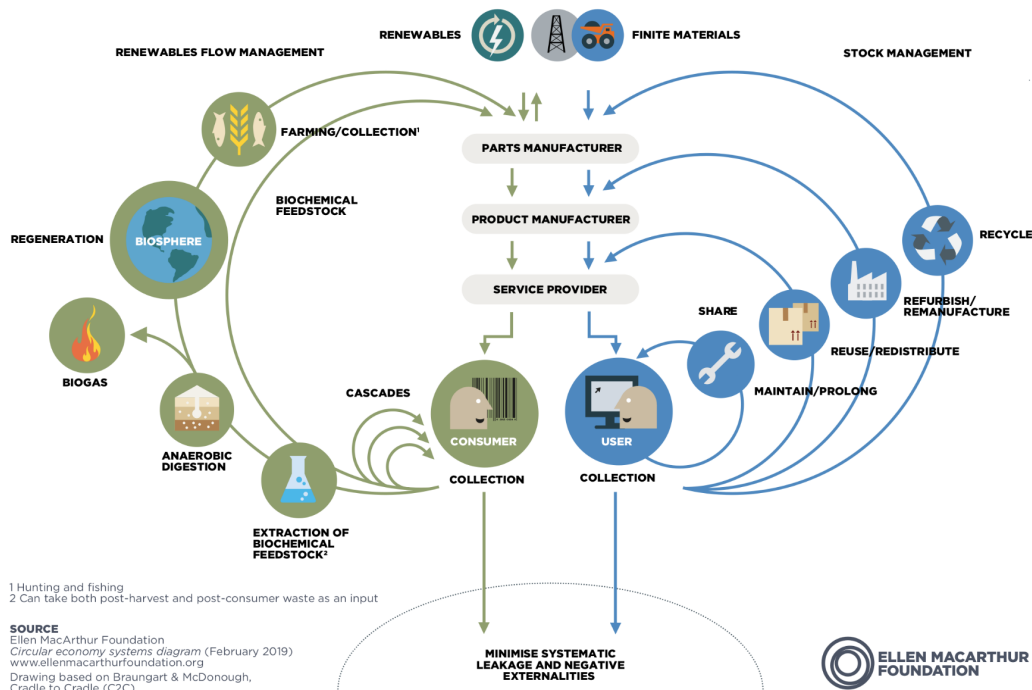
World's nations start to hammer out first global treaty on plastic pollution
Science, Vol 375, Issue 6583 (2022).



Panama City.

The circular economy is based on three principles, driven by design:

- Eliminate waste and pollution
- Circulate products and materials (at their highest value)
- Regenerate nature



Ellen MacArthur Foundation: *It's Time for a Circular Economy*”.

- <https://ellenmacarthurfoundation.org/>
- <https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview>

REQUIREMENTS: Entries submitted for the UH Circular Plastics Challenge Must:

- Be original work.
- Cite any references used.
- Not be published elsewhere.
- Be Submitted by 11:59 pm CST on 1 November 2023.

All submissions **MUST** include:

- A submission title.
- PeopleSoft ID of team members at the top right
- Address one of the 5 Topics requested (see below)

Submissions **MUST NOT** Include authors' names anywhere on the submission PDF.

FORMAT:

- Maximum 12 letter-sized pages to communicate the idea in an appealing format (document or slides).
- References are not included in the page count limit.
- Describe the idea, what is unique or differentiating, how it can succeed, potential impact, and next steps that would be needed for development.

ELIGIBILITY:

Open to all undergraduate and graduate students -- full or part-time -- across the University of Houston System.

JUDGING CRITERIA:

50% Strength of idea: is it unique, credible, actionable? Can it make a difference?

25% Effectiveness of communication.

25% Quality of references and analysis backing up idea: use of critical thinking and background research.

Top 5 entries will be invited to present to a panel of judges at 3:30 pm on 16 November. Each semifinalist team is allowed 10 minutes presentation with 5 minutes for questions. All finalists will receive cash awards, decided on basis of presentation and written submission.

PRIZES

Judges will award prizes of \$5,000, \$3,500, \$2,500, \$1,500, and \$1,000 to the 5 finalist teams, to be announced during the November 16 Energy Night event.

TOPICS:

1. **Process focus:** Develop a new concept, technology, or approach to plastics recycle that will increase recycled vs. discarded waste (to landfill or incineration) and / or will provide a higher purity "stream" of material that can be more easily converted back into high valued products.
2. **Product focus:** Develop and market a product based on recycled plastic. How will recycle material be obtained and how will it be processed into the recycled product? How can it be marketed to incentivize recycle?
3. **Packaging focus:** think about all the different types of plastics and materials used in packaging for shipping of consumer and industrial products. How would the idea

change this to improve recycle and collection, use fewer different types of materials, and produce less waste?

4. **Biodegradable plastics:** how would one sustainably make them and engineer performance, if the intent is to have them biodegrade back to CO₂ at end of life?
5. **Plastics and the environment:** how to prevent or recover plastics which end up in the ocean, beaches, waterways, roadside, streets, parks?

Each entry will require research into what is the situation today, and how the new idea or concept will improve recycle and reduce waste. Evaluation will be based on the feasibility, including possible new technology or new systems of collection to improve recycle, changes in consumer behavior or policy, and/or changes in the types of plastics or materials used to improve recycle efficiency and reduce waste.

REFERENCE

U. S. Environmental Protection Agency (EPA), Draft National Strategy to Prevent Plastic Pollution, June 2023: https://www.epa.gov/system/files/documents/2023-04/Draft_National_Strategy_to_Prevent_Plastic_Pollution.pdf