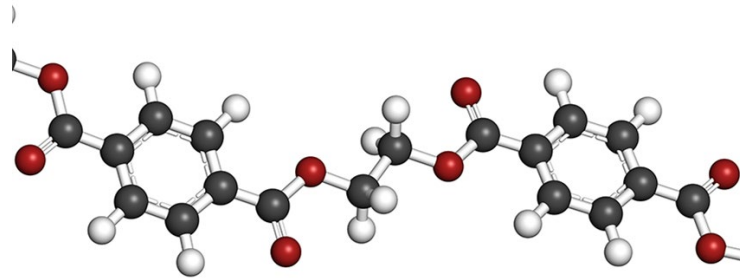


The Future of Sustainable Plastics

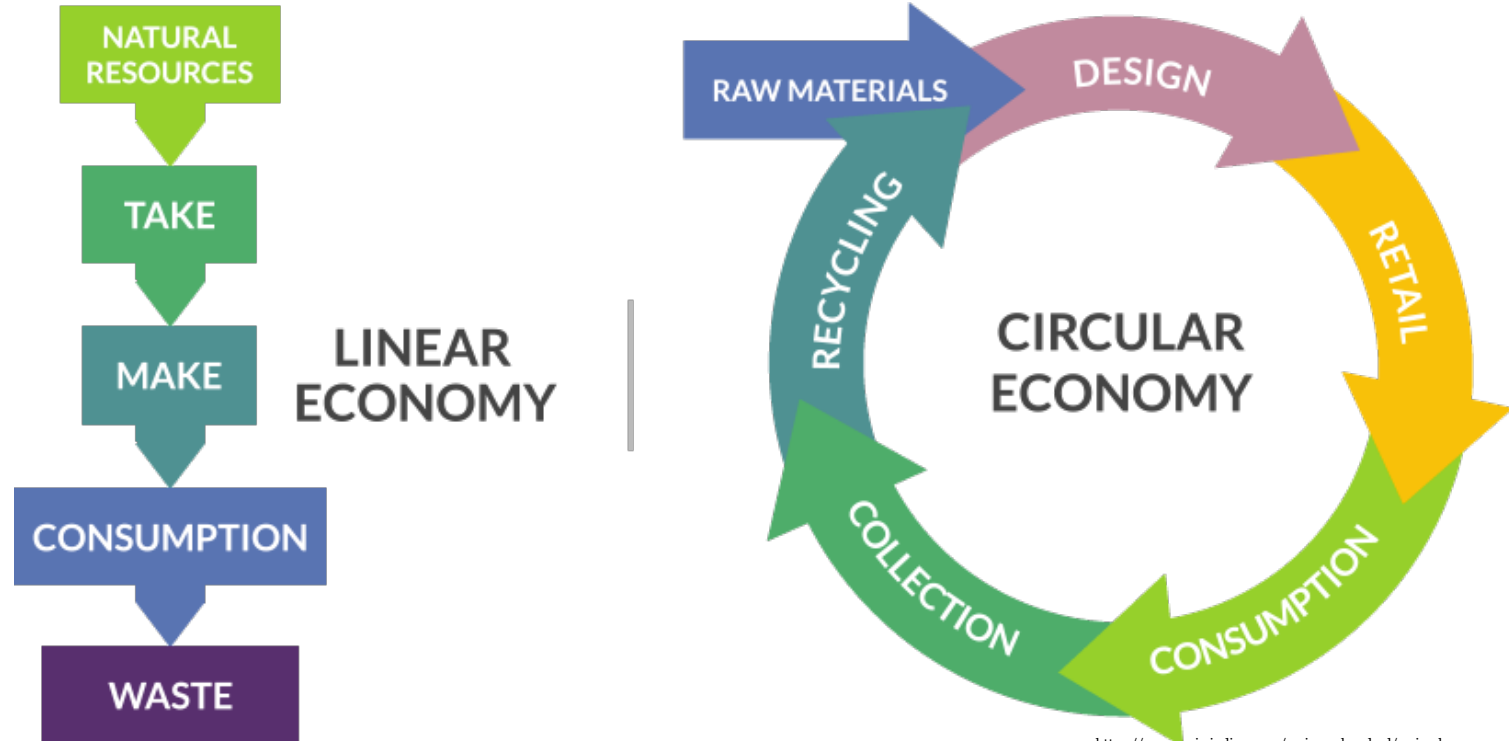
Global Energy Transition Talk Series



Agenda:

1. Introductions (Dr. Nicola De Blasio)
2. Presentation of Study Results and Conclusions (Phoebe Fallon)
3. DARPA and ReSource Introduction (Dr. Blake Bextine)
4. Roboze Introduction (Alessio Lorusso)
5. Q & A (Moderated by Dr. Nicola De Blasio)

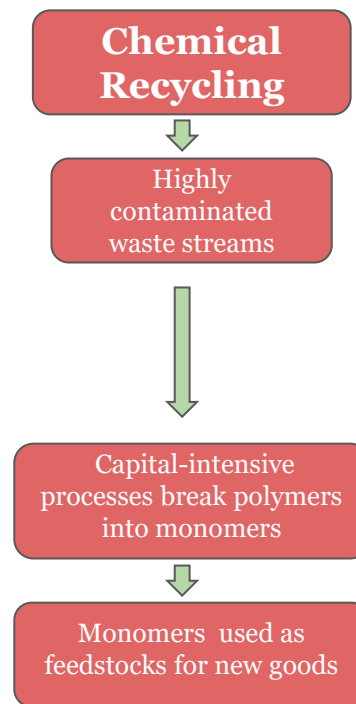
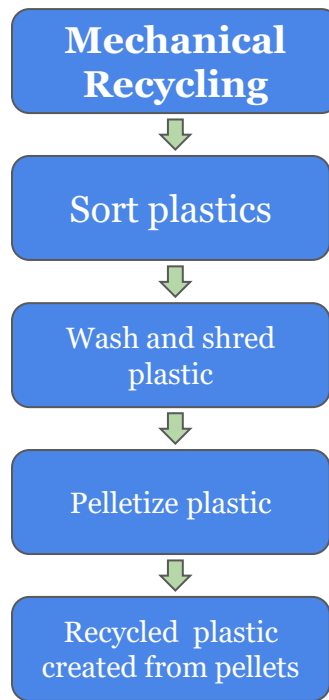
Circular economies present a valuable opportunity to decrease waste and increase product sustainability



<https://www.mvis-indices.com/mvis-onehundred/a-circular-economy-designing-out-waste>

Plastic value chains are fragmented, and recycling processes inefficient and expensive

- ❖ Labelling, collection, sorting and reprocessing vary based on location
- ❖ Post-consumer plastic waste is inhomogeneous
- ❖ Mechanical recycling is widely used, but leads to progressive material degradation
- ❖ Alternative recycling methods are capital-intensive, preventing widespread adoption
- ❖ Recycling is market-driven, and price of recycling is often higher than virgin materials



Recommendations

- ❖ **Increase recyclability of plastics: Redesign** products to be easily recycled and reused. **Limit** the number of specialized plastics and of additives. Introduce **extended producer responsibility** to create incentives for plastic products to be more easily recyclable.
- ❖ **Enhance recycling.** Improve existing collection and recycling systems. Build infrastructure tailored to recycling bioplastic. **Mandate recycling targets** and percentages of recycled materials in new products. **Incentivize recycling** for consumers.
- ❖ **Decarbonize production.** Switch to **low carbon energy sources**, while substituting petroleum-based plastics with more sustainable materials. **Conduct life cycle analyses** on new products to ensure their overall sustainability. Build demand for bioplastic through policies, like renewable plastic standards, starting from high value products.

Recommendations

- ❖ **Development of new public private partnerships.** Foster government support for **research and development**—both through investment vehicles and private public partnerships. **Align incentives**, for example by requiring producers to address the negative externalities of plastic waste, such as ocean clean-up. **Develop global partnerships** that combine technical and regulatory factors to harmonize value chains.
- ❖ **Demystify the plastic sector** and ensure that local communities and the public at large have appropriate appreciation for the critical role they play. **Educate consumers** on plastic lifecycle and **incentivize sustainable practices**, as the way plastic products are used and disposed of has a significant impact on their value and quality post-use.