



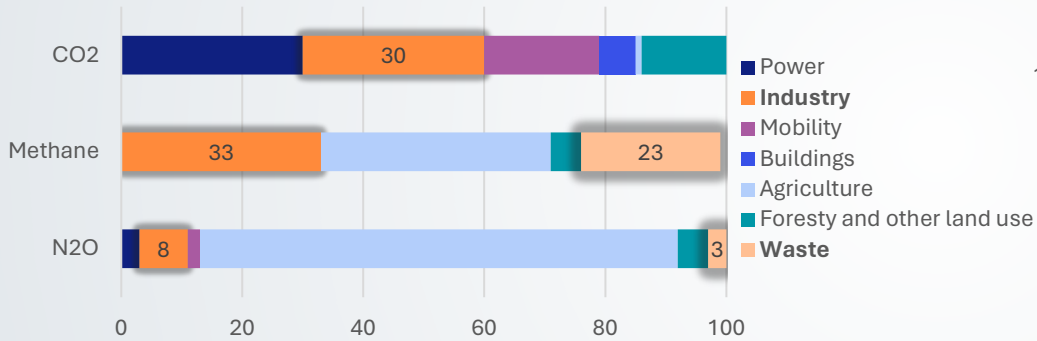
INNOVATIVE SOLUTIONS FOR A CIRCULAR ECONOMY: Navigating Decarbonization and Sustainability Challenges

Presented by Carlo Badiola

2024 TIEEP Energy Forum - May 1, 2024

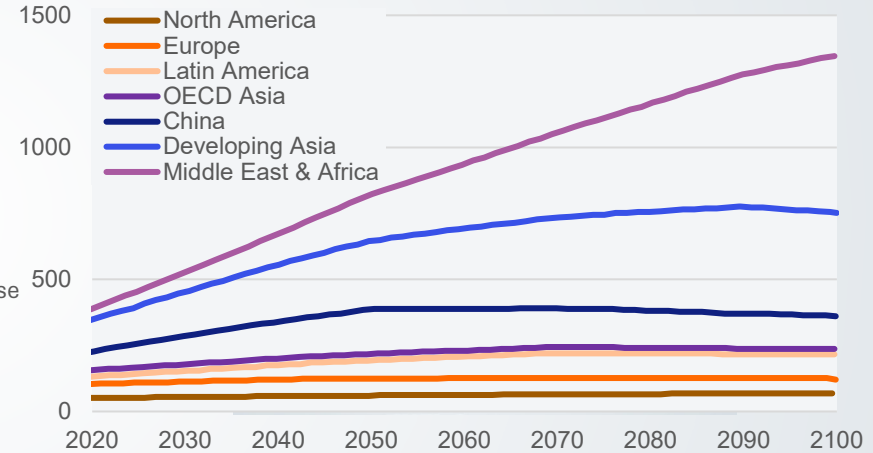
Decarbonization Today

Share of Emissions Per Energy and Land-Use System in 2019 (%)



Data from: [“The net-zero transition: what it could cost & what It could bring” McKinsey & Company, 2022.](#)

Plastic Demand Per Region (MMt Per Year)



Data from: [“The circular economy a powerful force for climate mitigation” Material Economics, 2018.](#)



You



Curbside/
Drop Off



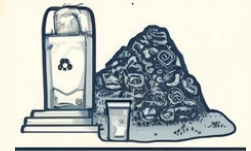
Recycling
Collector



Recycling
Processor
(MRF)



Recycling
Markets



Landfill

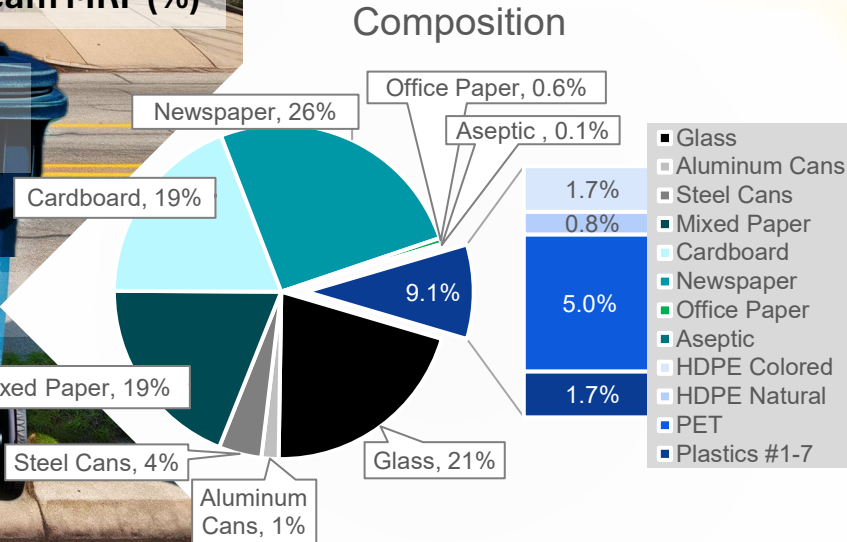
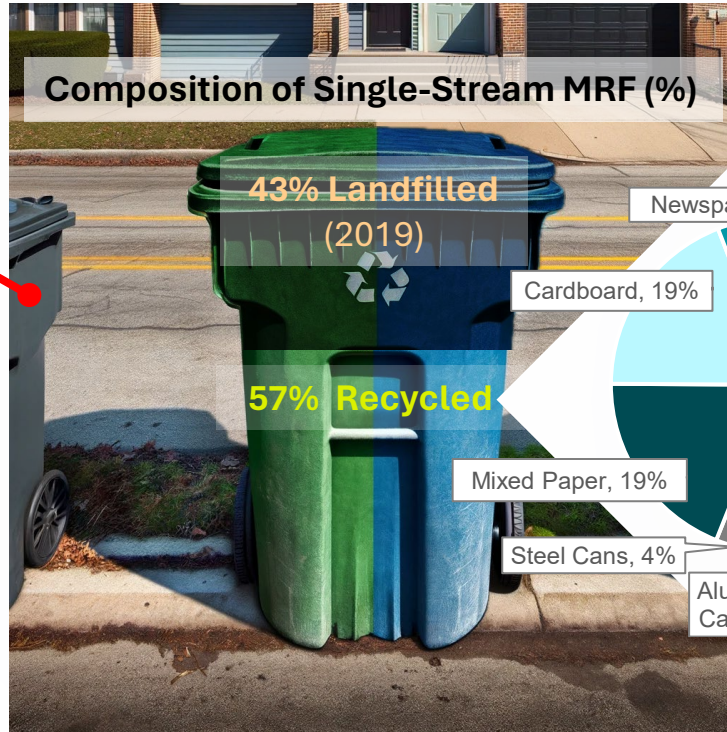
What goes in your **Recycling** vs **Garbage**



Recycling Bin Contents

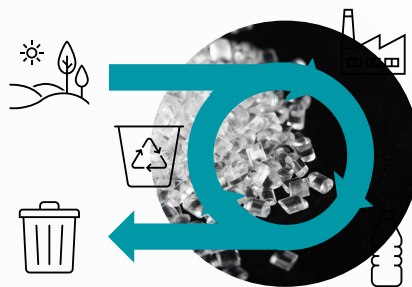
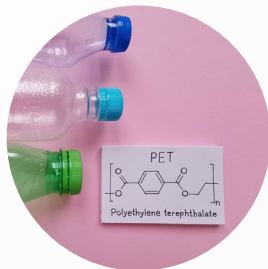
Agency

???



Data from: [“Examining Contamination Rates at Florida Materials Recycling Facilities”, Prepared for Florida Recycling Partnership Foundation, 2020.](#)

Recycling Pathways



Make New Products
(re-make over again)

Use New Products
(re-use over again)



Take Molecules Apart

Household Reuse

Mechanical Recycling

Monomer Recycling

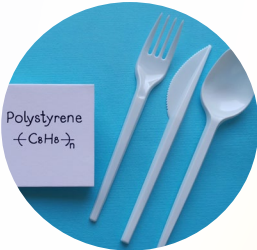
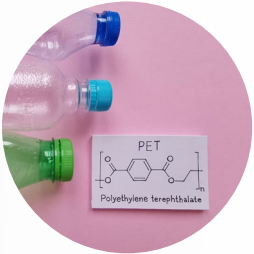
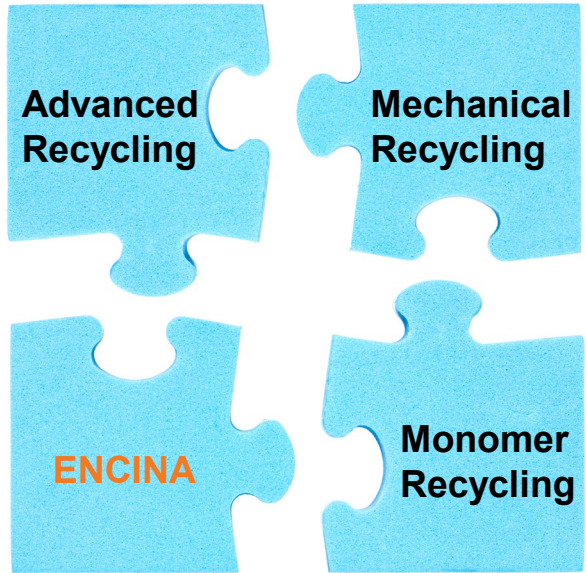
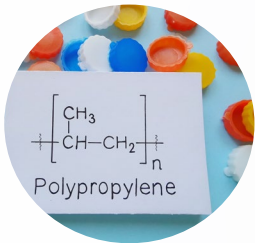
Advanced Recycling



Monomer \longleftrightarrow Polymer



No One Size Fits All



Balancing the Costs of Recycling



An Example: Encina's Circular Solution

1
Encina will source plastics, including hard-to-recycle ones, from regional material recovery facilities.



2
These materials are delivered by enclosed trucks and stored in enclosed storage spaces on the site.



3
A catalytic process is used to pull apart the molecules, breaking down the materials back into their smaller building blocks.



4
Consumers use new plastic products and then discard them for recycling.



5
The liquid products are shipped to manufacturers who can simply drop them into their existing manufacturing processes and create thousands of new plastic products without using new, fossil fuel-based resources.



Decarbonizing Our Future

