



Mike Ferrari, President  
Consortium For Waste Circularity

# THE FUTURE

Of The **Food Industry Is Circular !**



## Landfills

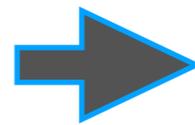


## Productive Land



### The Problem Statement:

- Landfills are filling in the urban cities
- Landfills & Incineration emit potent GHG's
- Recycled content (virgin like) is in short supply



### Vision:

- Transform all waste processing to circularity
- End landfills/incineration & associated GHG's
- Remove complex sorting
- Create valued end product for packaging; waste2syngas2eco-methanol



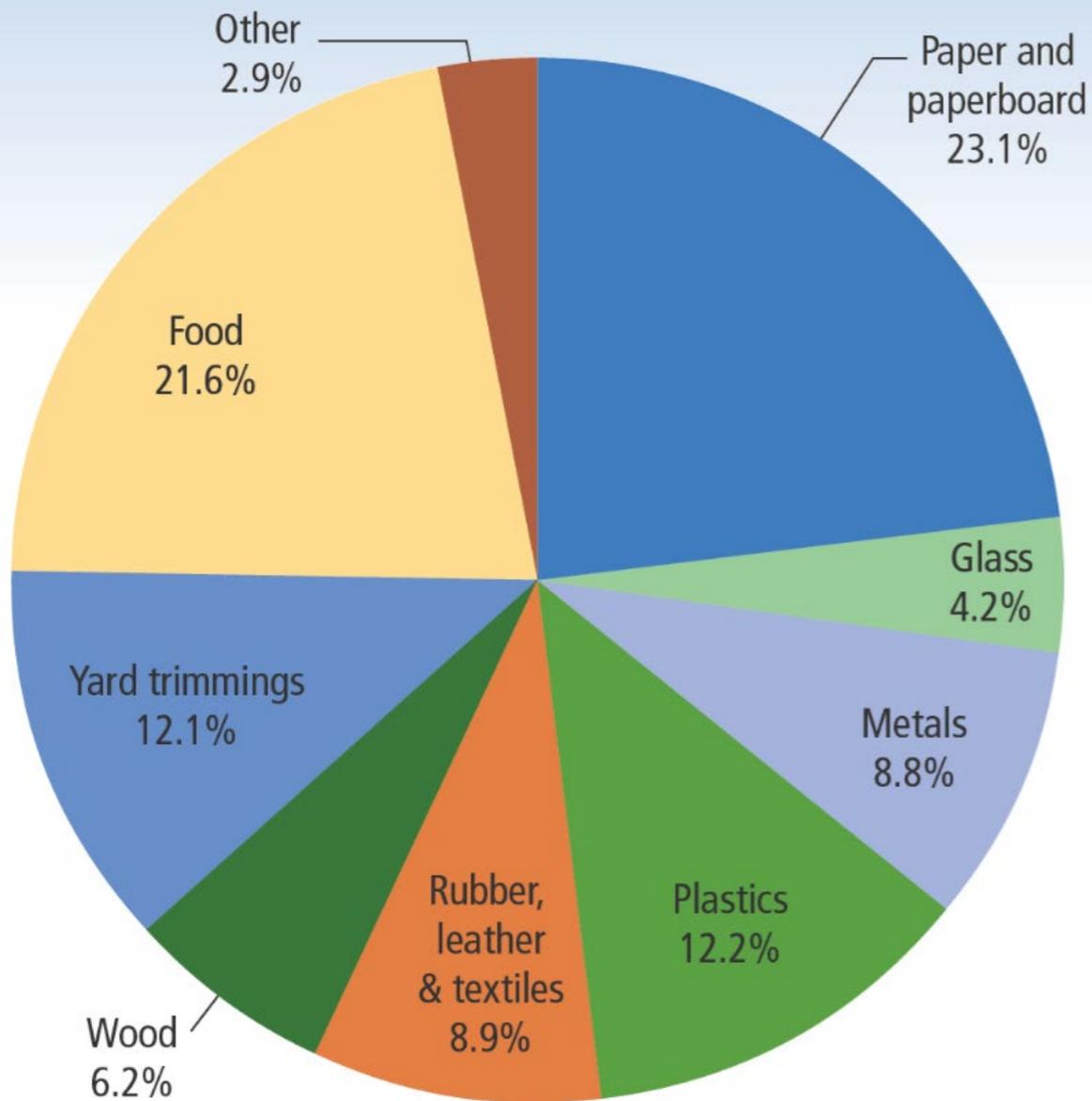
# Food Industry Packaging





# The Food Industry Contribution To Landfills

**Figure 4. Total MSW Generation (by material), 2018**  
**292.4 Million Tons**



Food, plus packaging — make up about 45% of all the materials in U.S. landfills, according to the Environmental Protection Agency.



# “New Plastics Economy” Glaring Omission



## Our Vision

In a new plastics economy, plastic never becomes waste or pollution. Three actions are required to achieve this vision and create a circular economy for plastic. **Eliminate** all problematic and unnecessary plastic items. **Innovate** to ensure that the plastics we do need are reusable, recyclable, or compostable. **Circulate** all the plastic items we use to keep them in the economy and out of the environment.

<https://www.newplasticseconomy.org/>

### Upstream Innovation

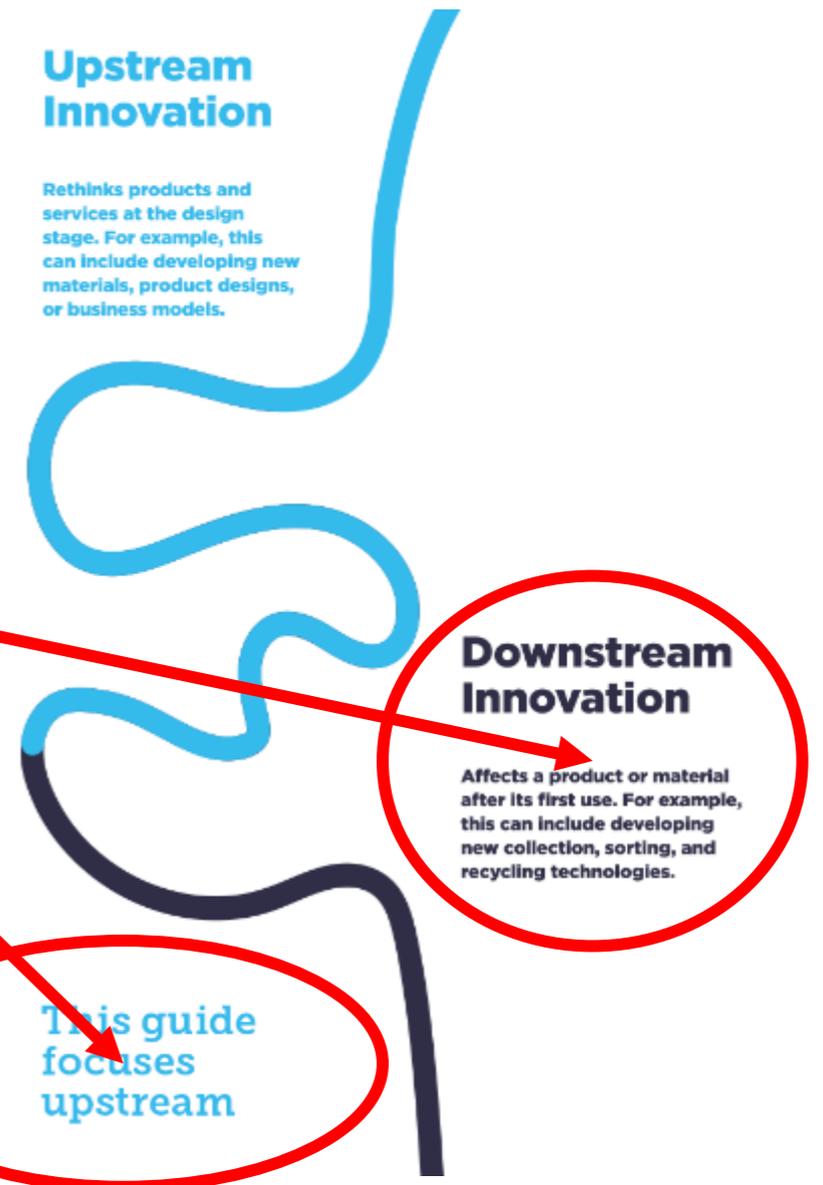
Rethinks products and services at the design stage. For example, this can include developing new materials, product designs, or business models.

### Downstream Innovation

Affects a product or material after its first use. For example, this can include developing new collection, sorting, and recycling technologies.

Note this

This guide focuses upstream

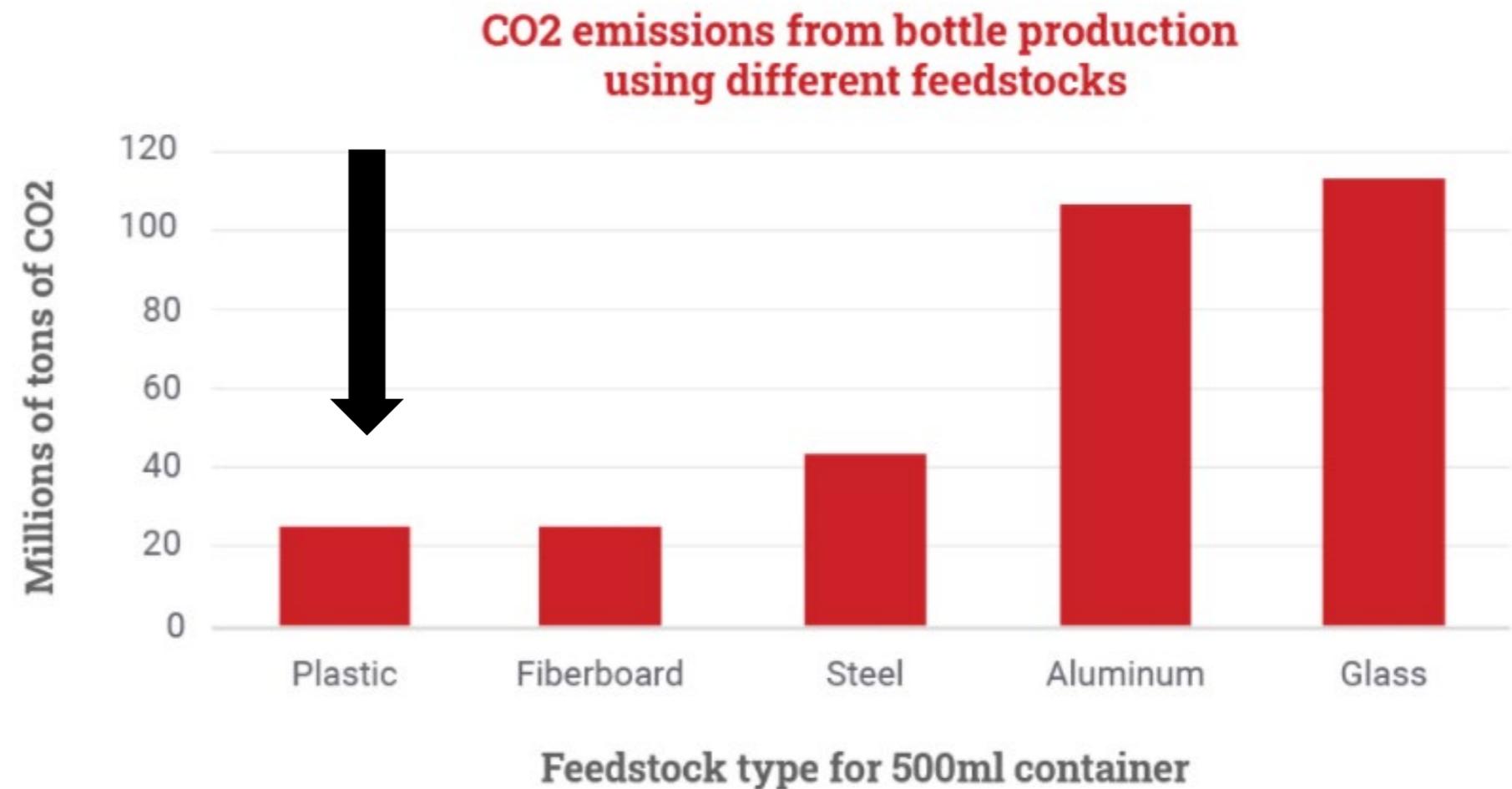




# LCA Plastic –Vs- Alternatives

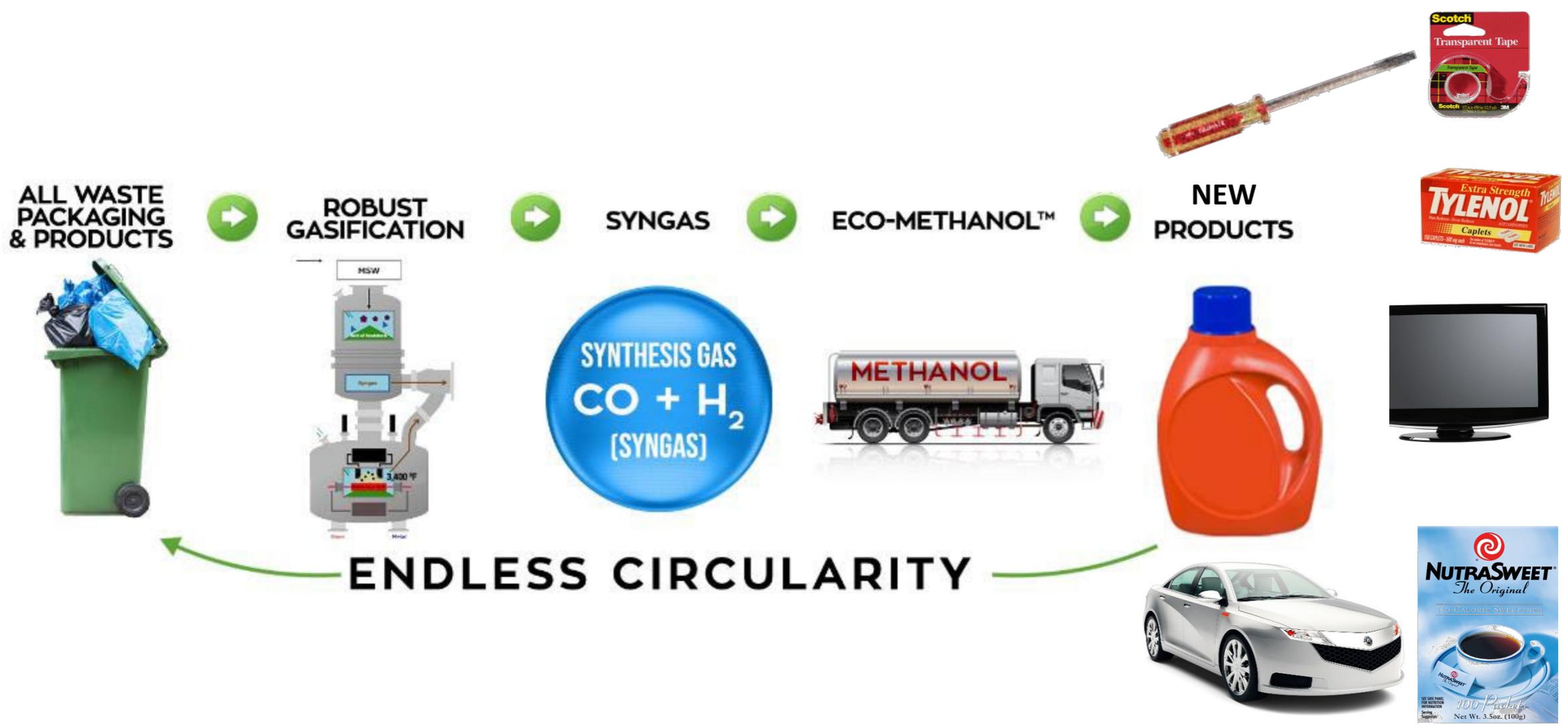
A 2020 Imperial College of London study reviewed **73 LCAs and most showed plastics outperforming alternatives from a carbon perspective.**

<https://thisisplastics.com/>





# Waste-derived Eco-Methanol™ is “recycled content”



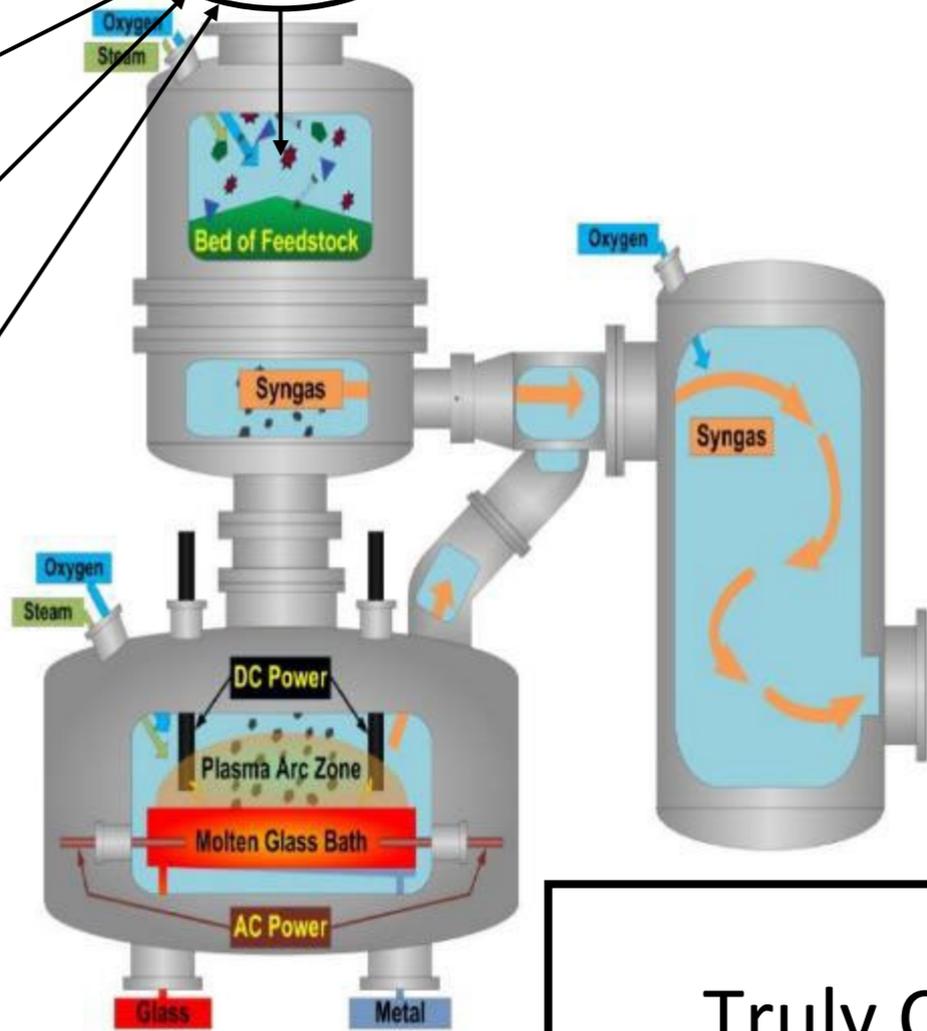


CONSORTIUM  
FOR WASTE CIRCULARITY

UNIVERSITY of  
**UF** FLORIDA



MSW



Synthesis Gas  
"Syngas"  
 $\text{CO} + \text{H}_2$

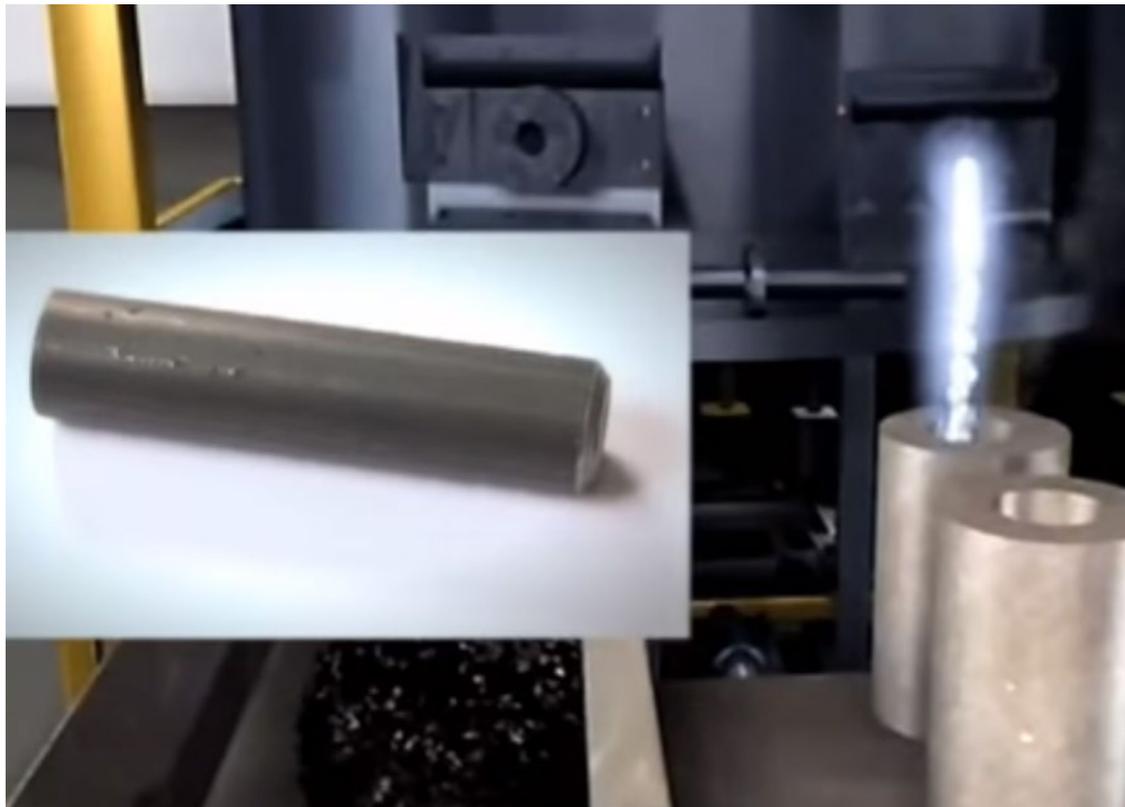
Recycled Content  
Methanol  
 $\text{CH}_3\text{OH}$

"Virgin"  
New stuff

Truly Circular



## What Comes Out The Bottom?



Mixed Metal Ingots  
(Rare Earth Metals – Ore)

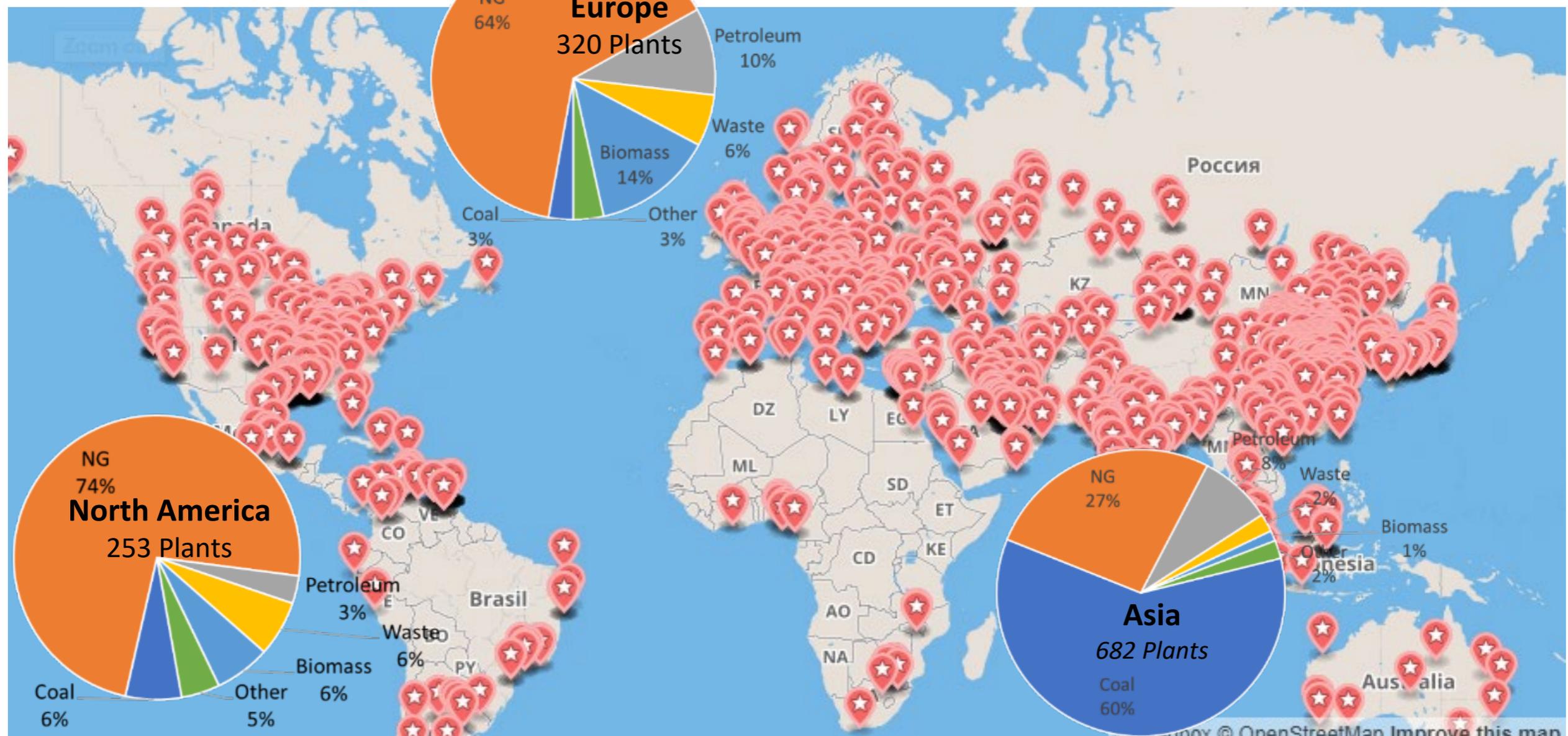


Slag – Vitrified Glassy Rock  
(or glassy products)



# Syngas Facilities

# by Feed & Region (source: GSTC)





# Syngas Is A Useful Building Block!

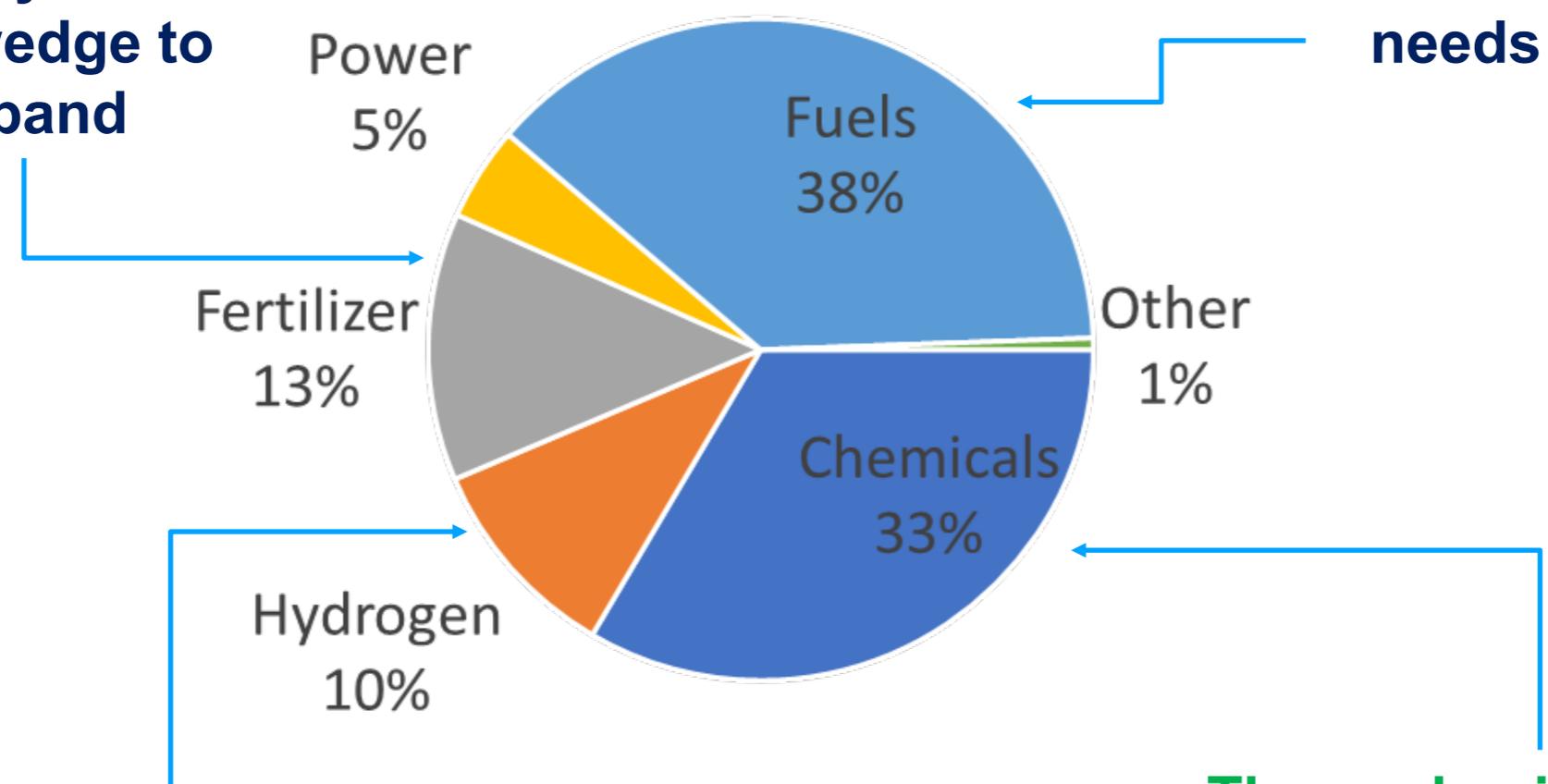
Worldwide Syngas Capacity by End Product  
MWth - Total 814,000

**The ag industry needs this wedge to expand**

**The airline industry needs this wedge to expand**

**The auto/transport industry needs this wedge to expand**

**The packaging industry needs this wedge to expand**





# From trash to take off

Instead of household waste going to a landfill, it will now be delivered to a Fulcrum facility and converted into sustainable aviation biofuel.



Fulcrum's thermochemical process reduces greenhouse gas emissions by 80% compared to traditional jet fuel.



Trash is collected and delivered to a Fulcrum facility.



The drop-in fuel meets United's technical requirements.



Nevada



Clean >> Scalable >> Efficient >> Reliable



Total trash placed in U.S. landfills in one year

Energy equivalent of 10 billion gallons of oil (3 times United's total annual fuel use)



The average American produces nearly 1 ton of garbage a year

That's 65 gallons of biofuels processed by Fulcrum



# What Is The Mission Of CWC?



- Align the packaging industry to support the transformation of ALL waste, not just plastics.
- Align the packaging industry to pledge use of eco-methanol™
- Fund R&D, education and outreach



# Let's Redefine A World Without Waste!

**Today's Trash Is Tomorrow's Eco-Methanol™**



1. Join the conversation... CWC linkedin page  
<https://www.linkedin.com/company/consortium-for-waste-to-syngas-circularity/?viewAsMember=true>
2. Test your manufacturing waste & food packaging
3. Join the Consortium & make it a part of your sustainability strategy
4. Coordinate a food industry discussion to deal with waste



**Include In Your**  
**Sustainability Strategy**  
**The Transformation of**  
**Waste To Endless Circularity!**

**Join The Consortium For Waste Circularity**  
**Email us: [contact@wastecircularity.org](mailto:contact@wastecircularity.org)**

**Website:**  
<https://wastecircularity.org>

