Presentation for Maryland Delegates

# Chemical Recycling and the Plastic Problem

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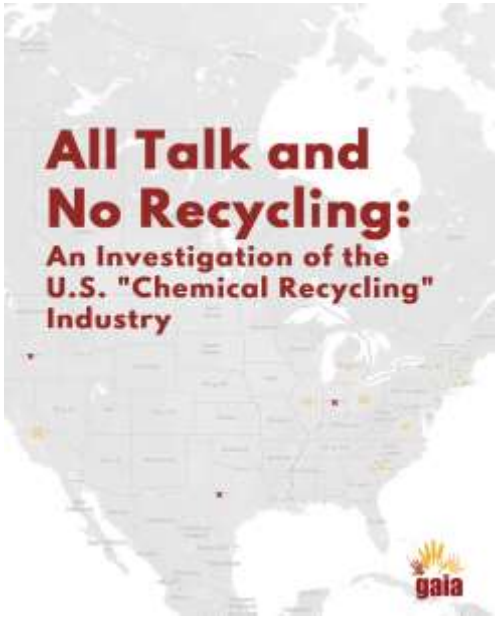
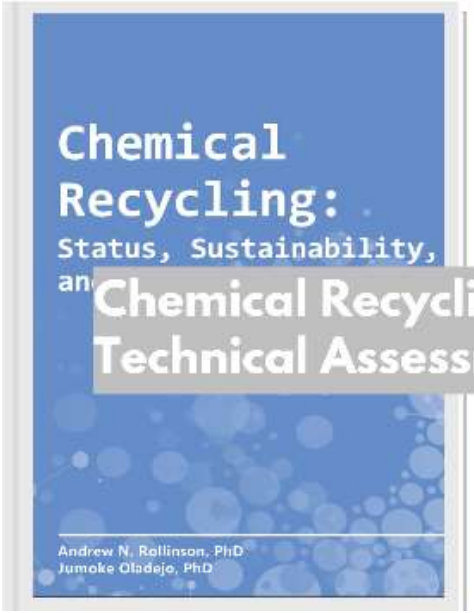
**GAIA: A global network of 800 organizations in 90 countries working for a just, toxic-free, zero waste world.**

**www.no-burn.org**




# Recent publications on chemical recycling

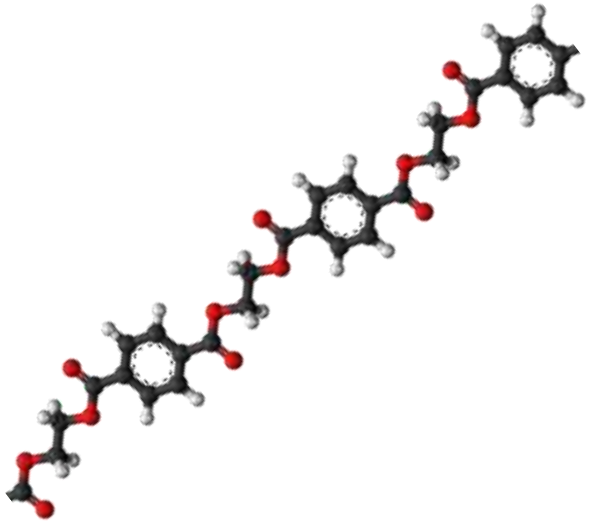



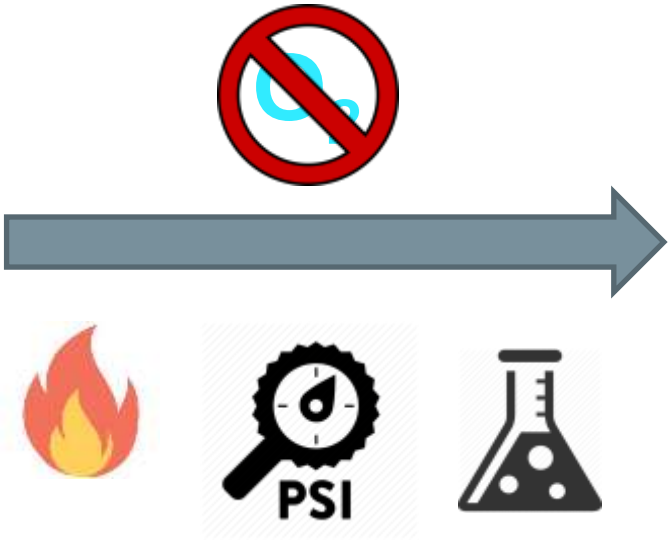
# We have a problem with plastic recycling

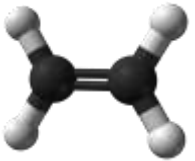

Source: Ellen MacArthur Foundation (2016). A New Plastic Economy.

# Chemical recycling – what is it?

**Chemical Recycling breaks plastic down into its chemical components (monomers)**

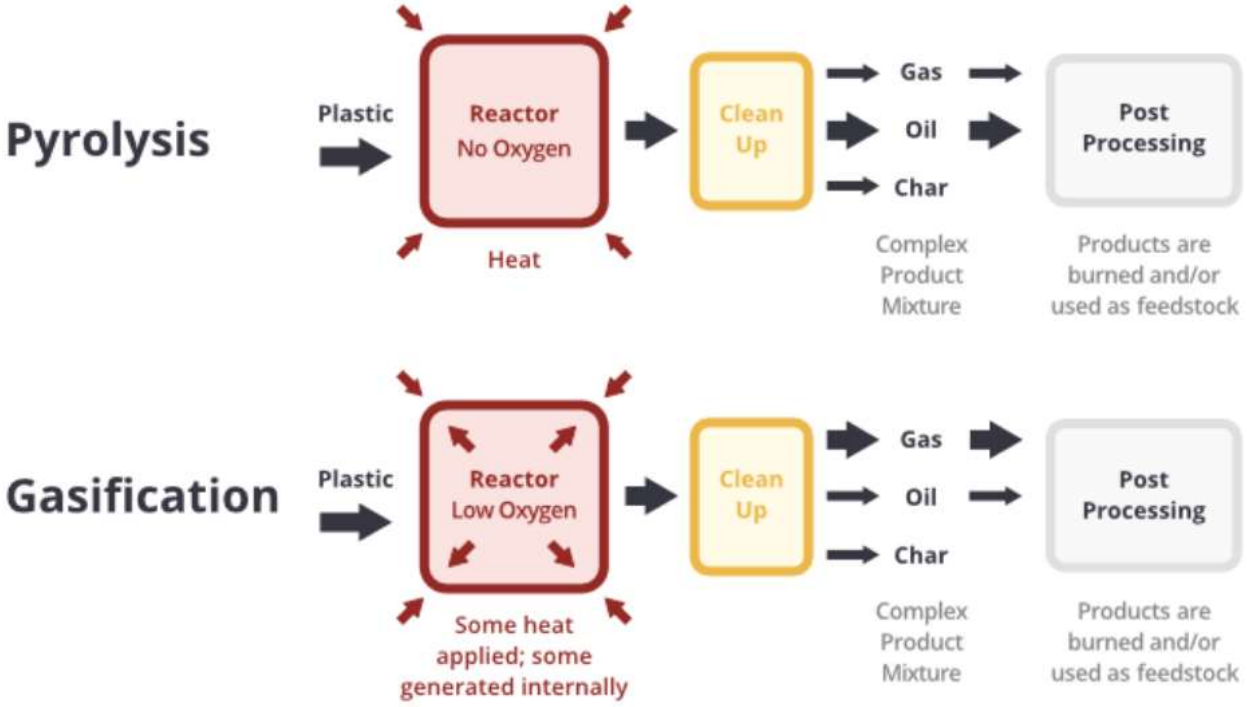




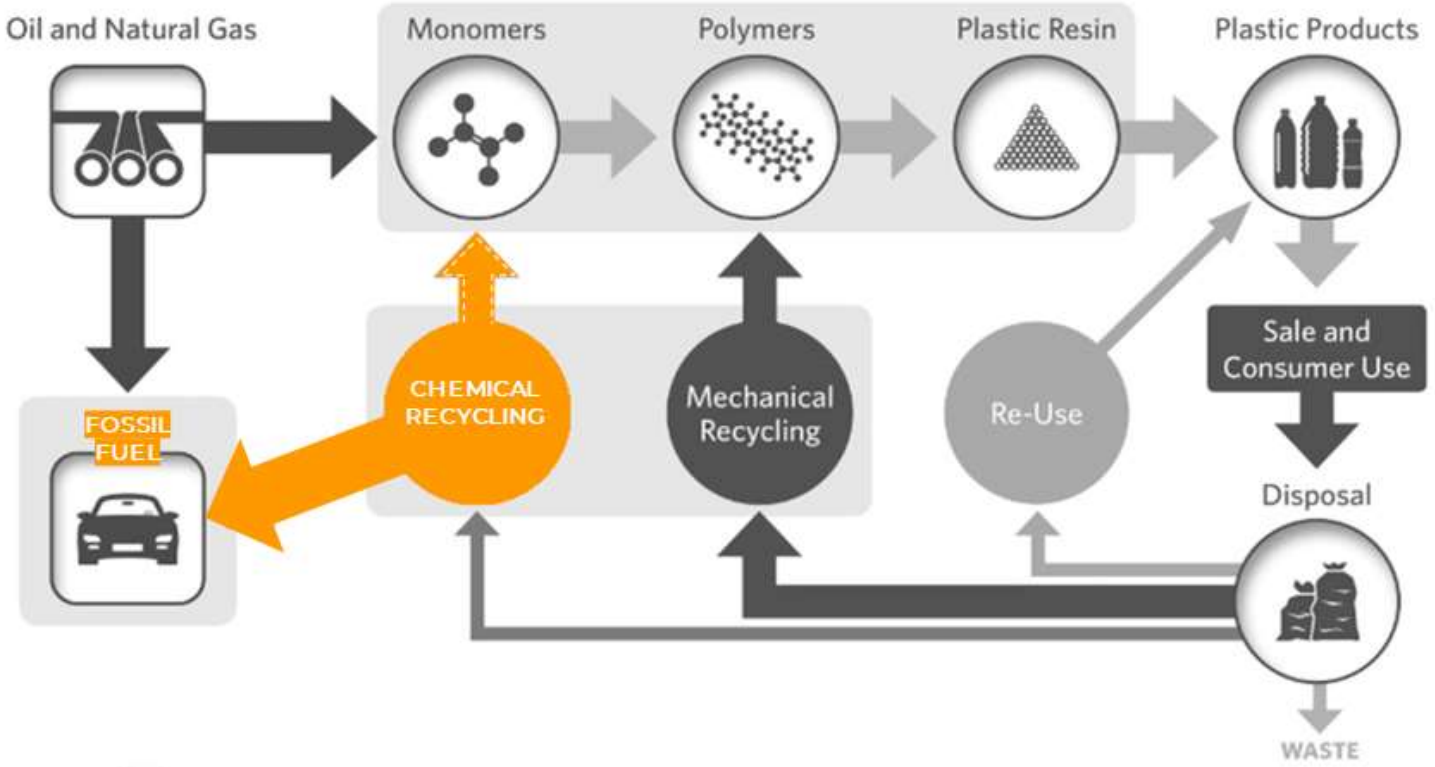



**Additives & Contaminants**

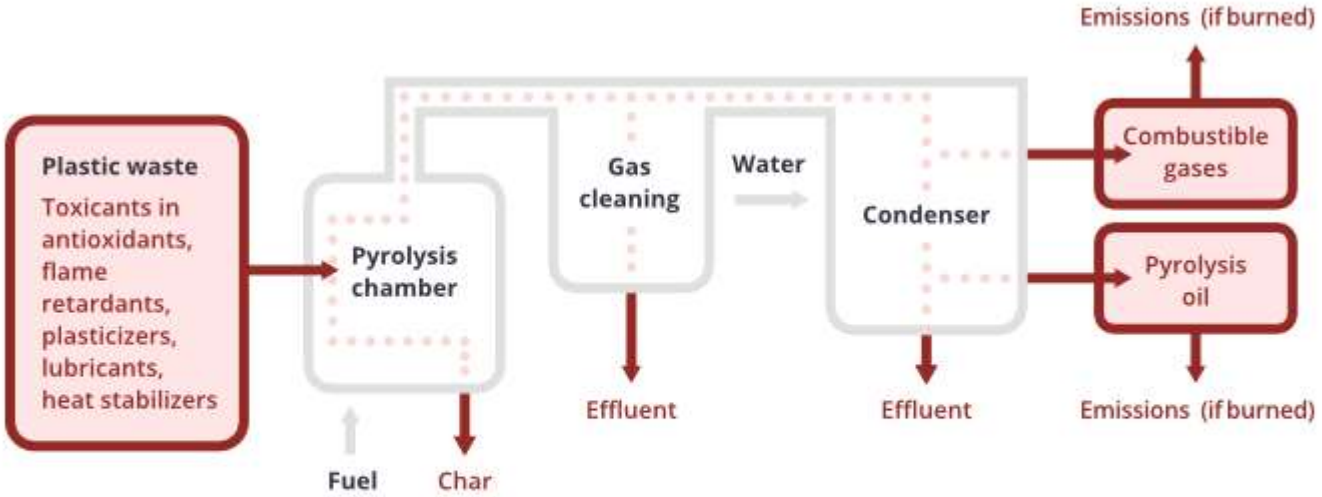
# Chemical recycling technology types



# Recycling or plastic-to-fuel?



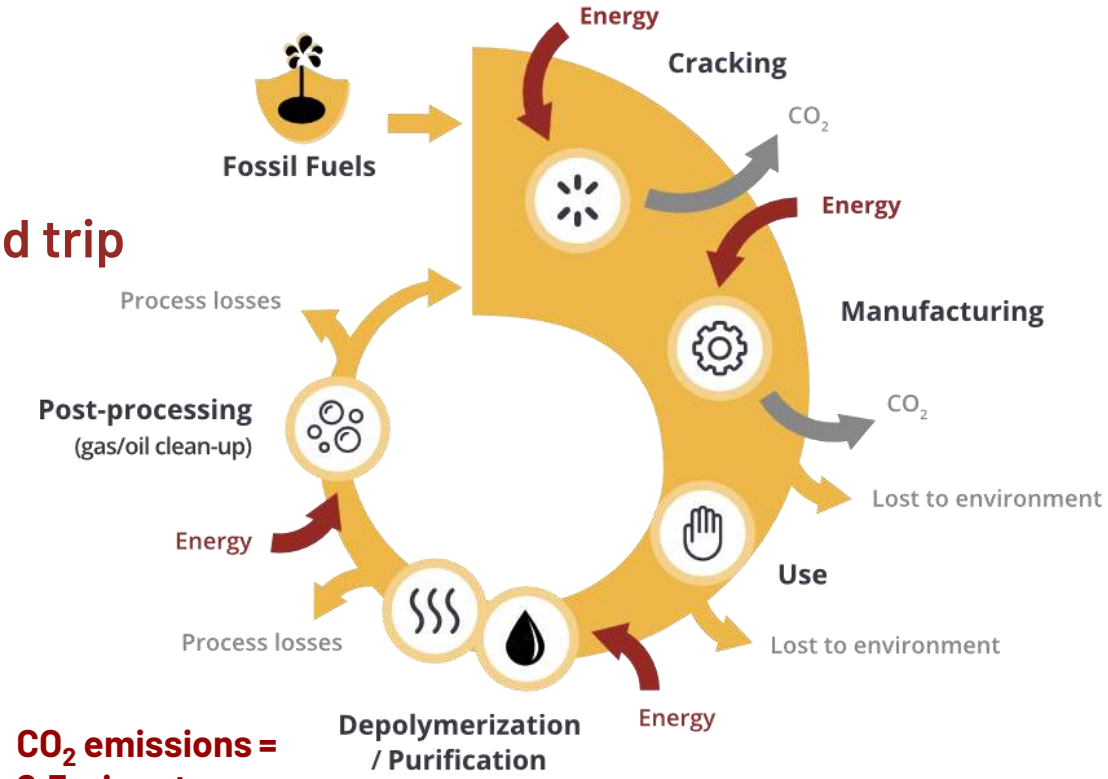
# Toxics in, toxics out




Toxicants include: phthalates, BPA, poly-brominated diphenyl ethers, toxic brominated compounds and poly-cyclic aromatic hydrocarbons (PAH), nitrated PAH (N-PAH), oxygenated PAH (O-PAH), and N/S/O – heterocyclic PAHs, As, Sb, Br, Zn, Cu, Hg, Cd, Dioxin, HCN

# No circular economy in plastic

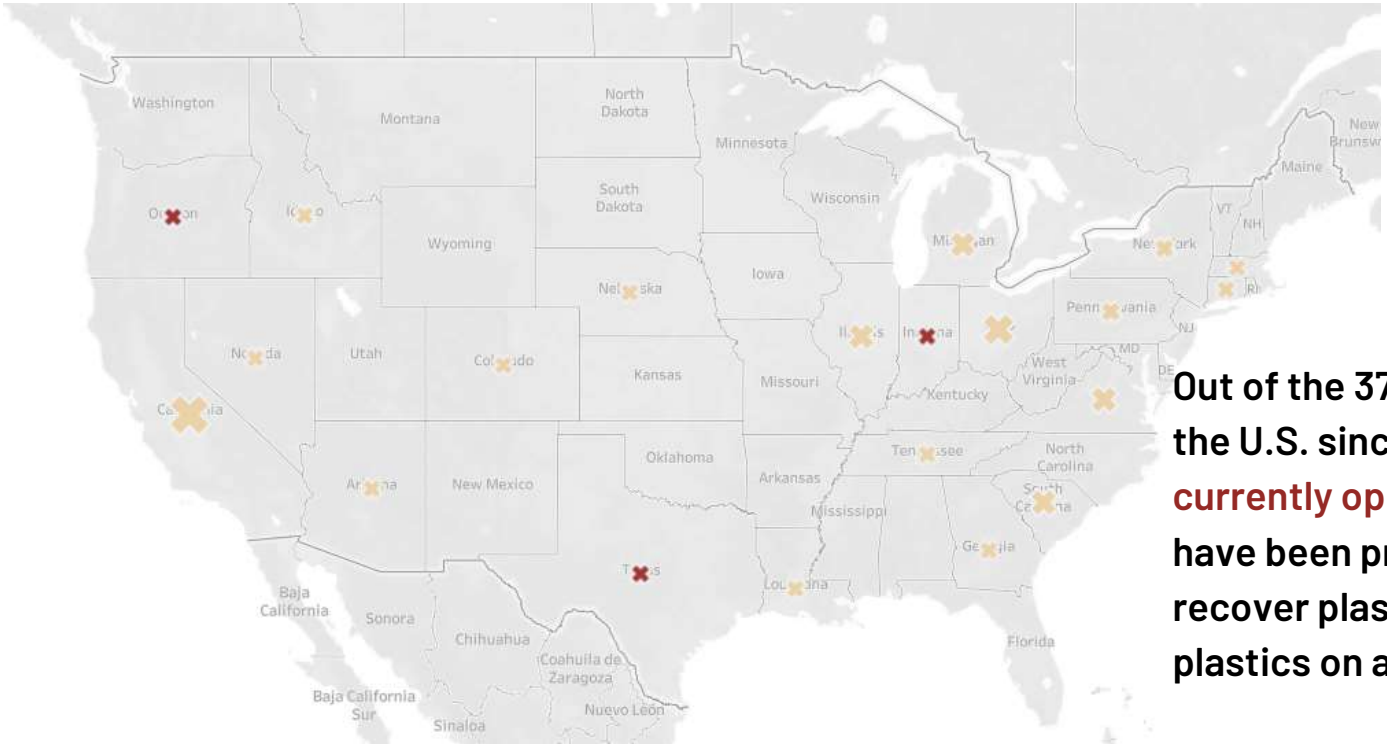
High energy intensity
High carbon emissions
Little plastic makes the round trip




**$CO_2$ emissions = 40% of input**

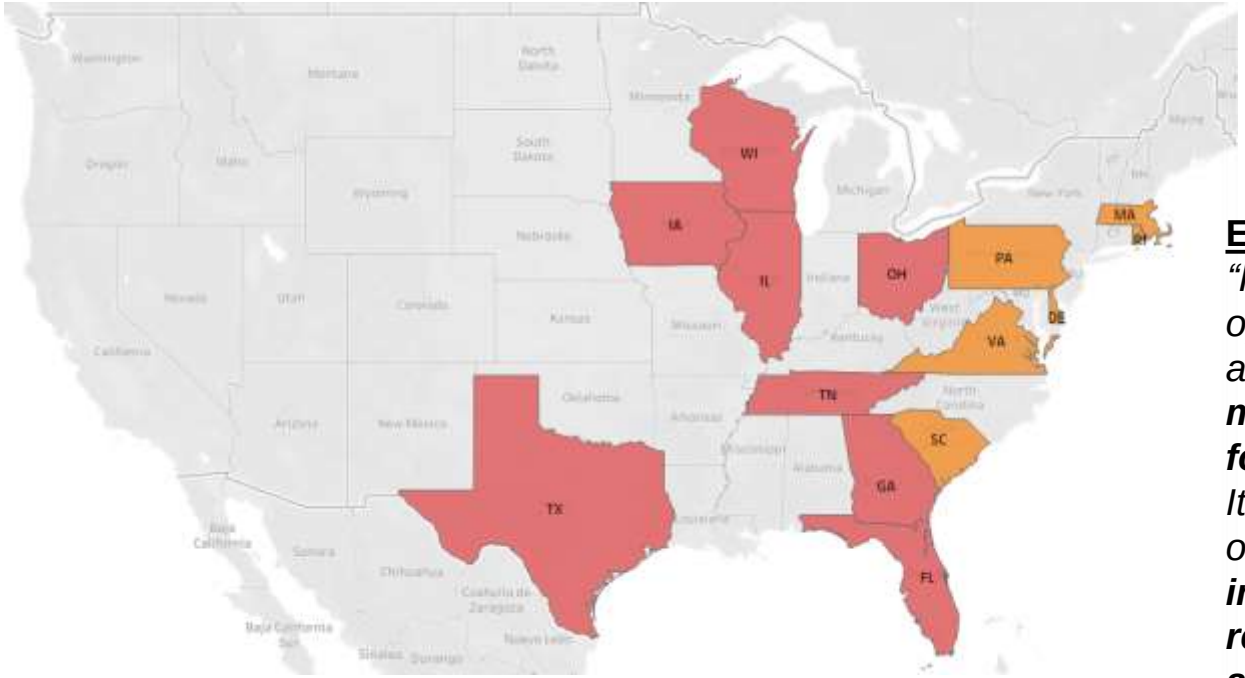
**$CO_2$ emissions = 2.5 x input**

# Proposed & existing chemical recycling facilities




**Out of the 37 facilities announced in the U.S. since 2000, only 3 are currently operational and none have been proven to successfully recover plastic to make new plastics on a commercial scale.**

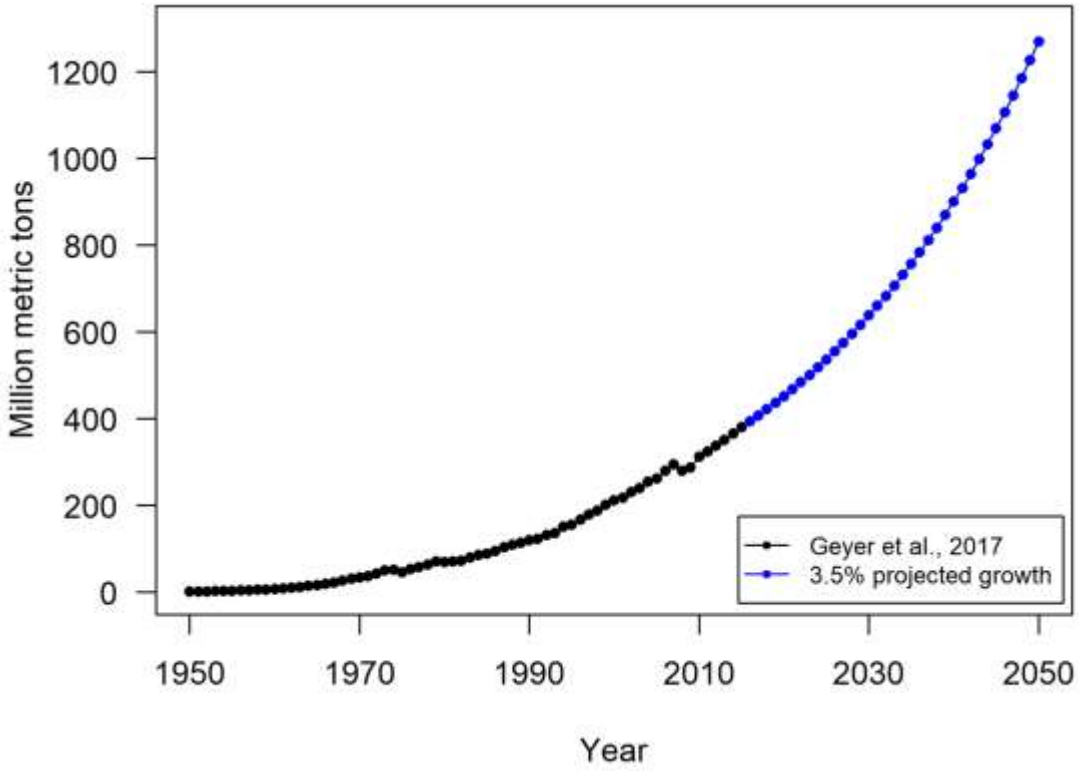
# Industry undermines recycling markets



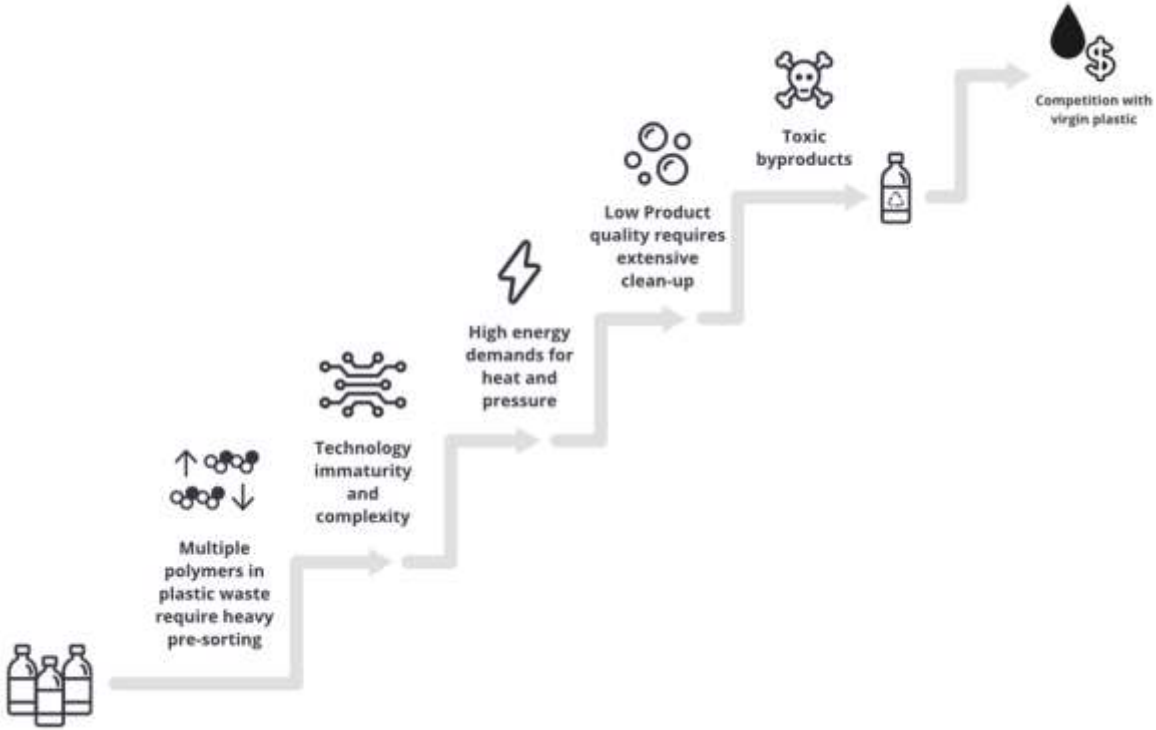

**E.U. Recycling definition:**

*"Recycling' means any recovery operation by which waste materials are reprocessed into* ***products, materials or substances whether for the original or other purposes****. It includes the reprocessing of organic material* ***but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations****"*

# Annual global plastic production



# Summary: Multiple barriers to sustainability



# For more on chemical recycling: www.no-burn.org/chemical-recycling-resources