PLASTICS INNOVATION OF ADVANCED RECYCLING

Kentucky Natural Resources and Energy Committee

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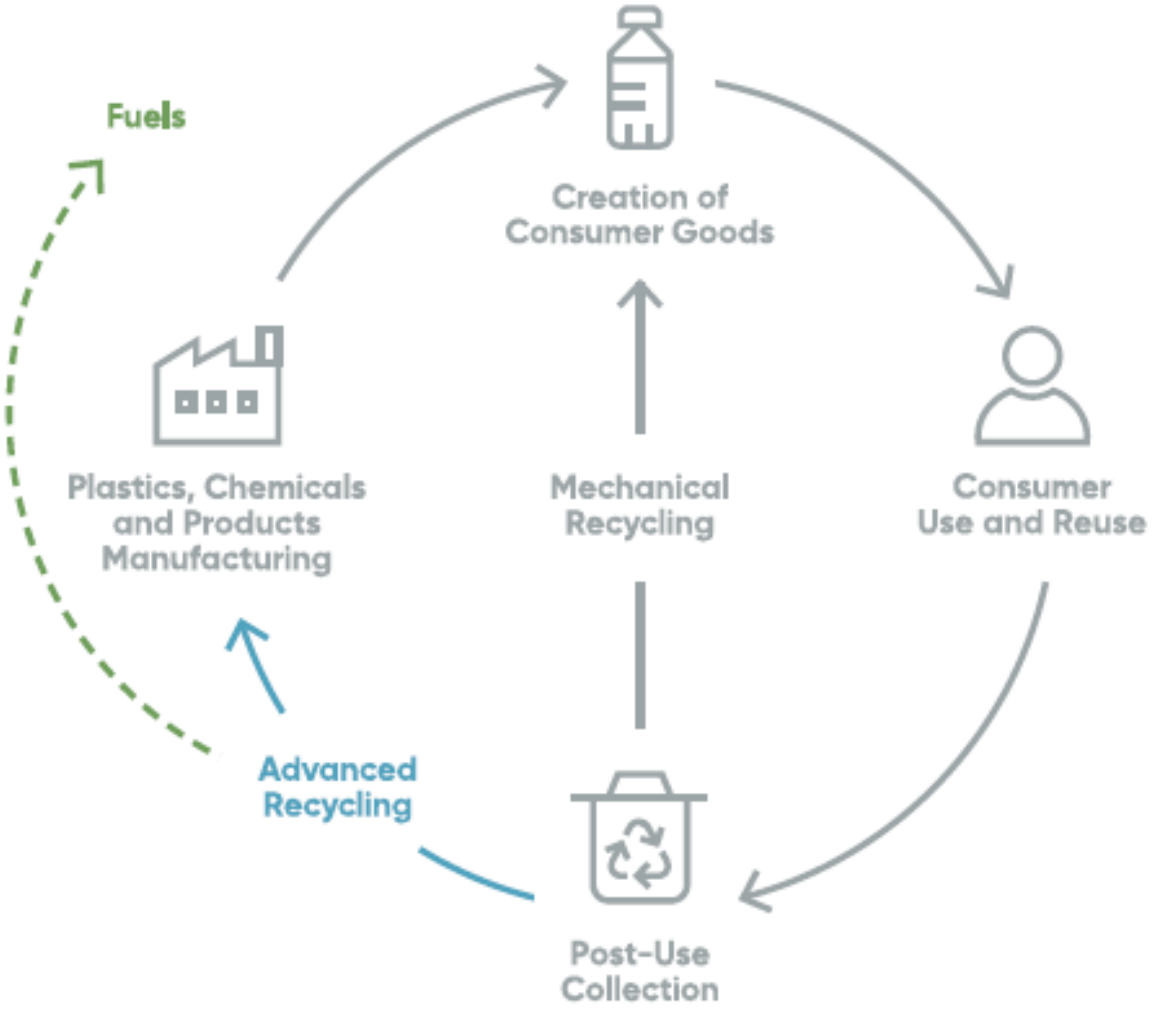
American® Chemistry Council

What is Advanced Recycling?

Leveraging chemistry to convert post-use plastics into valuable products which extend the life of plastic

Outputs:

- Basic building blocks for new chemicals
- Feedstocks for new plastics
- Plastic additives (e.g. for asphalt roads, roofing)
- Waxes
- Lubricants
- Fuels



Complementary Approaches

Mechanical Recycling

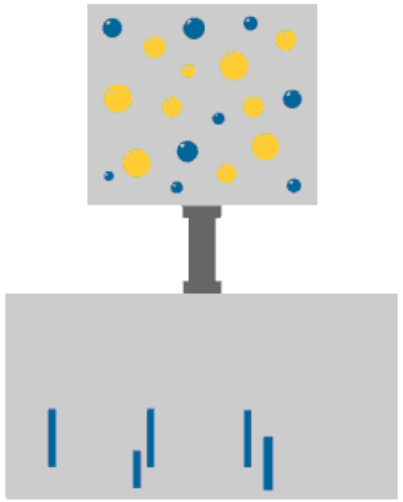
- Well-suited for some plastics (1s & 2s)
- Established sortation and processing
- End markets in durable products
- Produces plastic pellets

Advanced Recycling

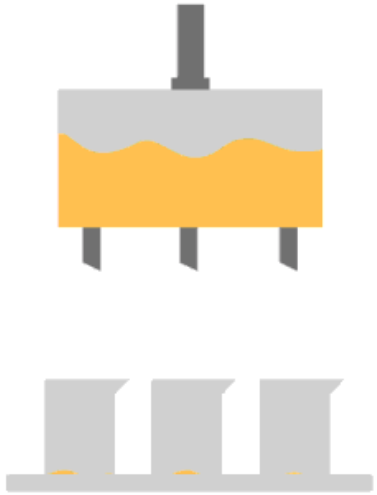
- Well-suited for harder to recycle plastics
- More tolerant for mixed plastics
- Suitable for food and pharma contact plastics
- Produces variable products

Pyrolysis-Based Advanced Recycling

Collected plastics are prepped for conversion



Pelletized plastics are heated & vaporized in the absence of oxygen



Condensable gases are converted into hydrocarbon products for use in ultra-low sulfur diesel, feedstock for new plastics, waxes, and other products

Source: BRIGHTMARK

Brand Commitments

Source: [New Plastics Economy Report, Ellen MacArthur Foundation]

Modernizing Plastics Recycling

66
Projects

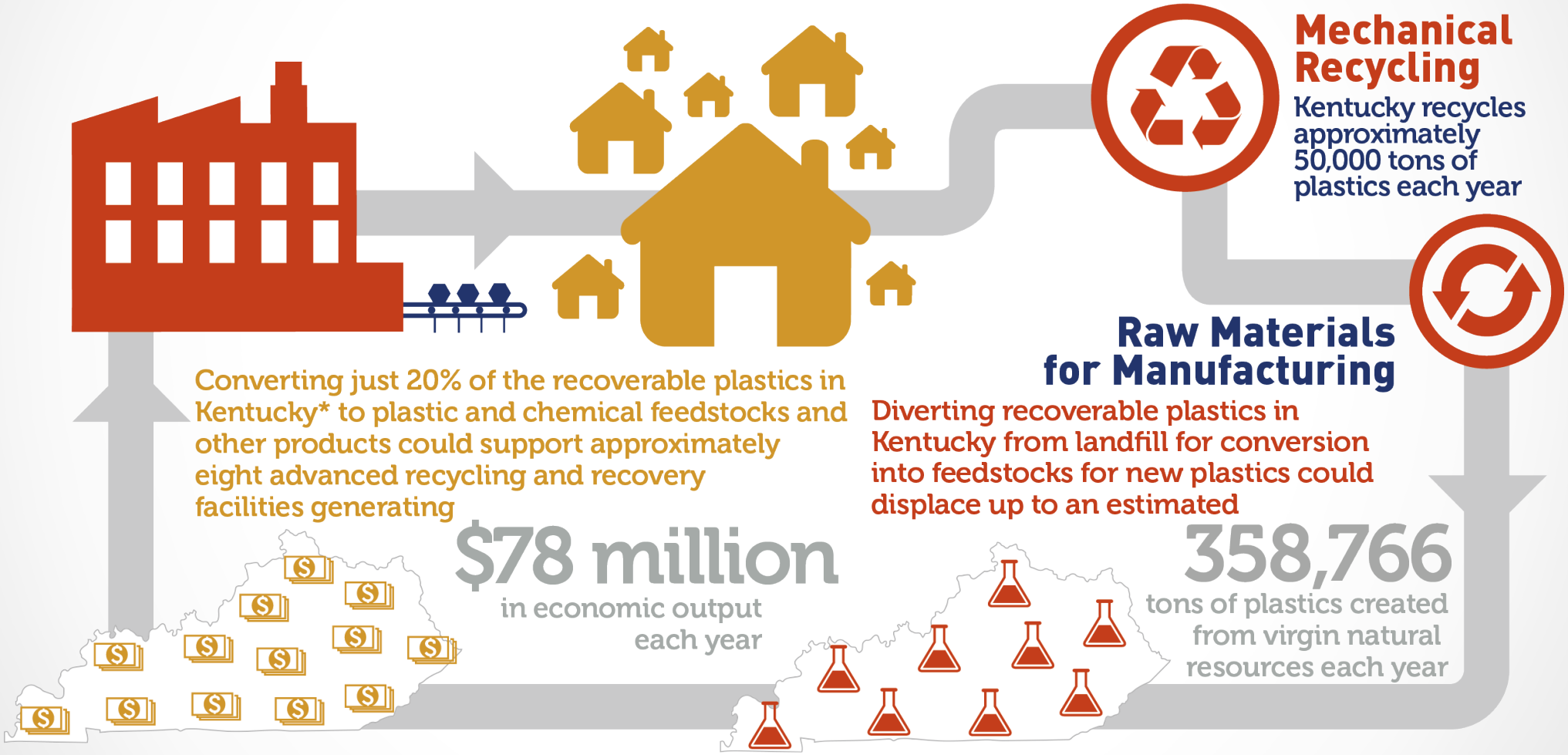
$5.5B
Worth

POTENTIAL TO DIVERT →

4.1M
Metric tons of landfill materials

82% of these announced investments are in the growing field of advanced recycling, which is crucial modern infrastructure needed to accelerate a circular economy for plastics.

Economic Development



Partnerships & Investments

Facilities in the U.S.

Environmental Benefits

- Advanced recycling (pyrolysis) of mixed plastic waste emits **50% less CO_2** than incineration of mixed plastic waste
- Chemically recycled plastics cause significantly **lower CO_2 emissions** than those produced from primary fossil resources

Advanced Recycling Emissions

CAP	Average AR Facility	Average Food Processing Facility
VOC	<5 tons/year	40 tons/year
PM_{10}	<5 tons/year	20 tons/year

Equivalent to Anheuser-Busch Brewery in Fairfield, CA.

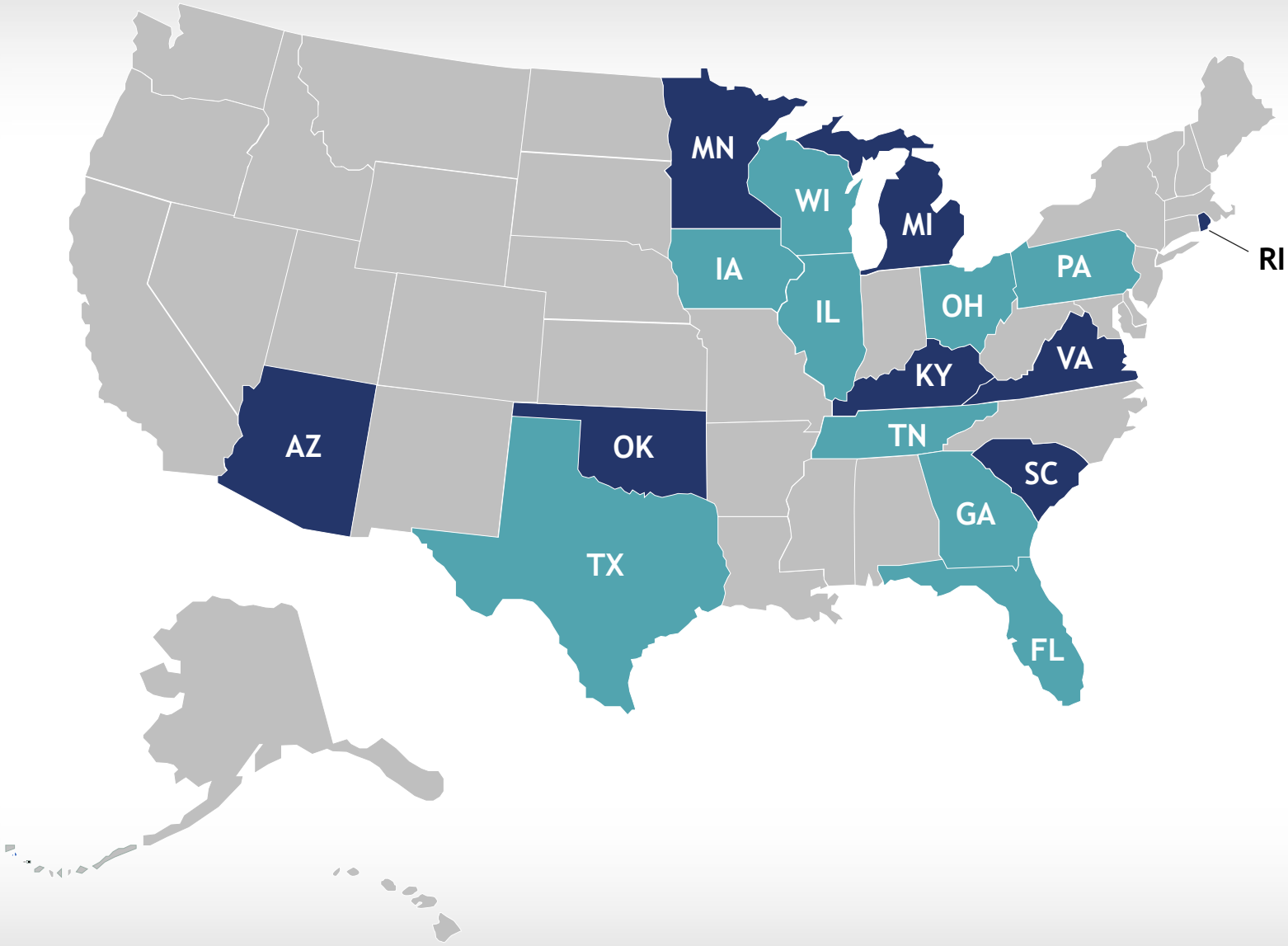
CAP	Average AR Facility	Average Institutional Campus (e.g., Hospital, University)
SO_2	<5 tons/year	50 tons/year
NO_2	<12 tons/year	15 tons/year

Equivalent to Yale School of Medicine in New Haven, CT.

CAP	Average AR Facility	Average Auto Manufacturer
CO	<10 tons/year	15 tons/year

Equivalent to GM engine parts plant in Bay City, MI.

Advanced Recycling Legislation



Legislation passed

Legislation introduced in 2021

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Video: *What is Advanced Recycling?*