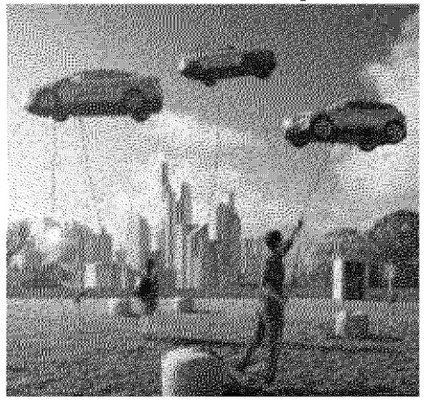
Plastics can play a key role, making modern life possible

Even under the IEA Net Zero Emissions by 2050 scenario, global demand for primary chemicals is projected to be 20% higher than 2022.[1]

Plastics help to enable performance and reduce potential environmental impacts across industries, from reducing vehicle weight and medical applications to food packaging (e.g. helping to extend shelf life) and films used to construct greenhouses

Better fuel economy[2] enables lower GHG per mile



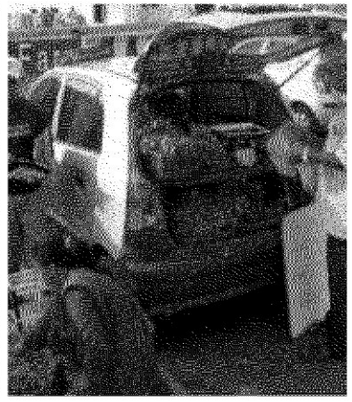
7%

fuel economy improvement possible with a 10% reduction in vehicle weight[2]

Lower lifecycle GHG[3,4] than the alternatives / Less solid waste[5,6]

1/3

of all food produced in the world is being wasted and not eaten by end consumers[6]



8-10%

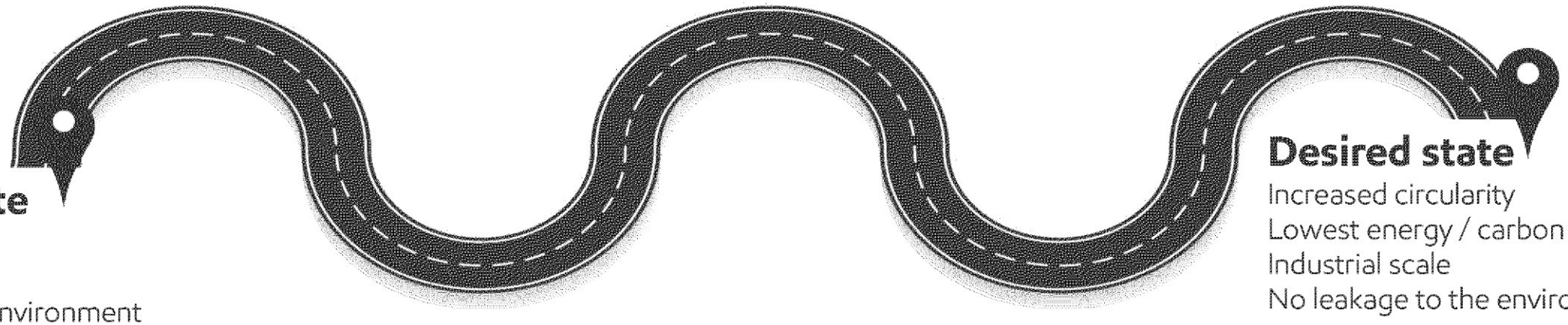
of global greenhouse gas emissions are associated with food that is not consumed[6]

Less water use[5]

[1] 2023 IEA report "Net Zero Roadmap: A global pathway to keep the 1.5°C Goal in Reach."
[2] According to the Department of Energy's Office of Energy Efficiency & Renewable Energy.
[3] Per April 2018 report of Franklin Associates; U.S. packaging market; Max Decomp.; Figure 4-1; Impacts as defined in Chapter 4.7: Global Warming Potential (GWP) results, and indexed to the alternatives as a group (including steel; aluminum; glass; paper-based packaging; fiber-based textiles; and wood).
[4] McKinsey & Co, Climate Impact of plastics, 13 of 14 applications analyzed has lower GHG impact than the next best non-plastic alternative, US based in 2020
[5] Per April 2018 report of Franklin Associates as in reference 3
[6] According to the United Nations Environment Programme (UNEP) Food Waste Index Report, released in March 2021.

Many solutions needed to address plastic waste at scale

Advanced recycling is one of them



Current state
Low circularity
Limited scale
Waste entering environment

Desired state
Increased circularity
Lowest energy / carbon intensity
Industrial scale
No leakage to the environment

Improved systems and technology

Waste management infrastructure | Sortation | Advanced + mechanical recycling | Design for recyclability | Reduce + reuse

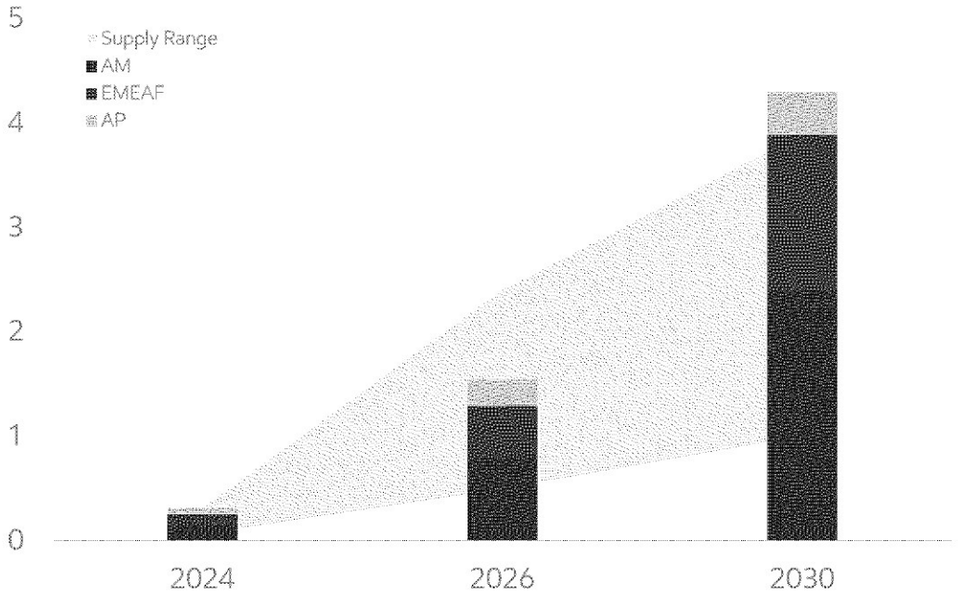
Enablers

Consumer education | Market + science-based policies | Government prioritization

Advanced recycling demand projected to grow

Advanced recycling demand could grow to ~4 million metric tons by 2030 outpacing projected supply

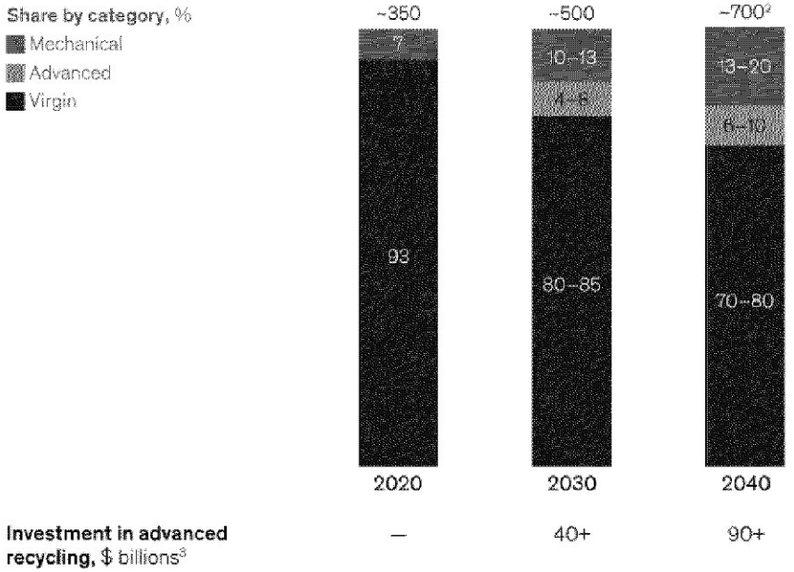
Estimated advanced recycling demand to 2030*, MTA



*Source: EM estimates in 2023, data based on public announcements and estimated segment fit

Advanced recycling demand could grow to 20 - 40 million metric tons, or 4 - 8% of the total plastics supply by 2030, requiring more than $40 billion of total investment

Global polymer demand 2020-2040,[1] million metric tons per year



[1] Polymer demand includes fibers (polyesters and polyamide), excludes rubbers and intermediates.
[2] Figures may not sum to 100%, because of rounding.
[3] Assumes capital intensity range of $1,500 to $3,000 per ton.
Source: CI Circular; McKinsey analysis

McKinsey & Company analysis

Brands EMF pledges	Regulations	Demand outpacing supply	High performing	Complementary technologies
20-30% by 2030 40-50% by 2050	PPWR, Mandates, Modulated EPR, ELV in EU	EM estimates industry supply in between 2-3 MT	Food Packaging, Medical, Hygiene, Pharma, Pet Care, Automotive	Advanced & Mechanical Recycling

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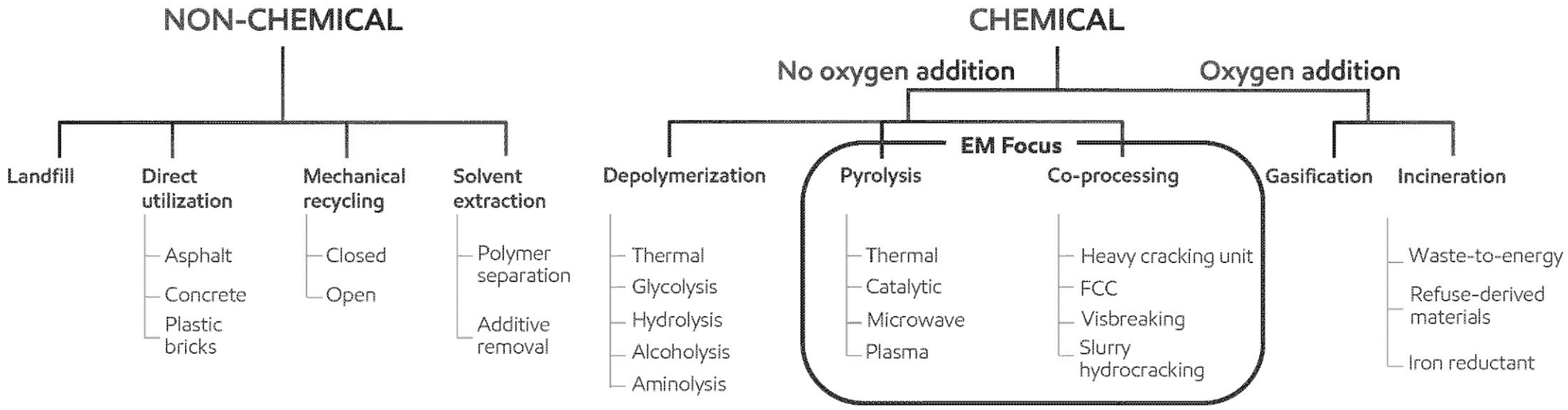
Overview of advanced recycling technologies

White Paper
Video



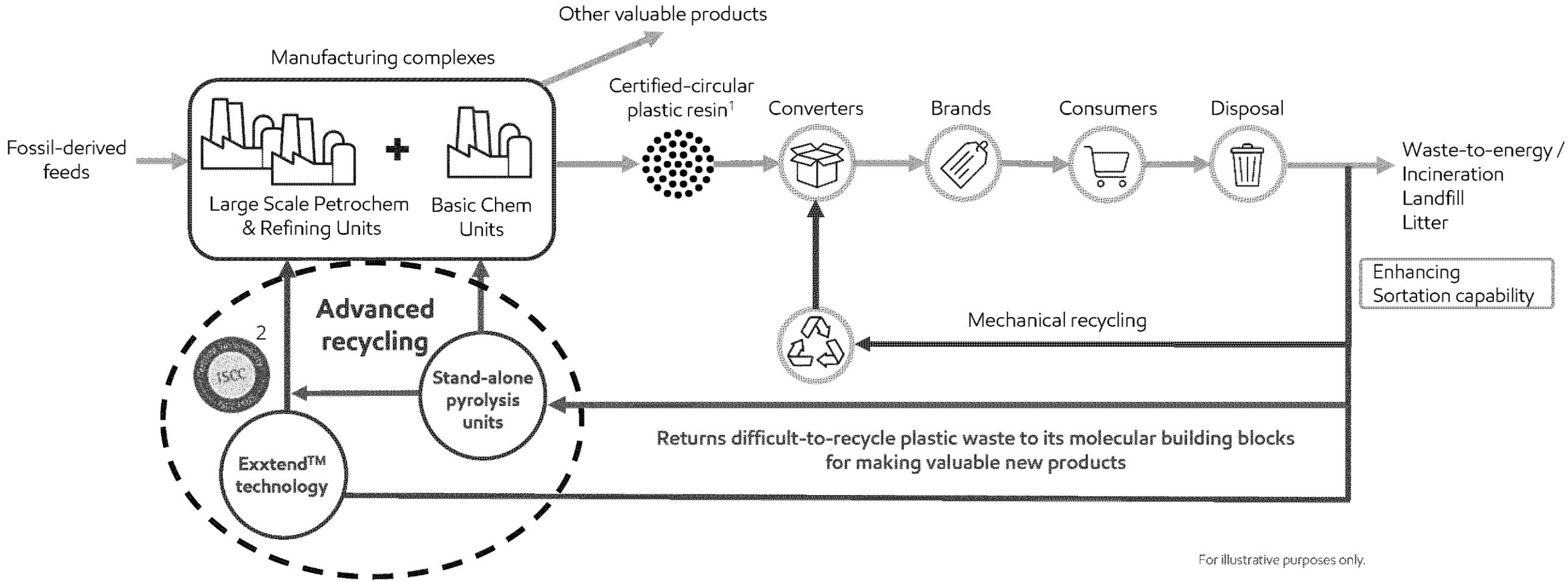
Typical feed	Unsorted waste	Mixed plastic scrap	Monopolymer plastic scrap	Multi-layer scrap	PET or PS scrap	Mixed PO scrap	Mixed PO scrap	Mixed PO scrap	Unsorted waste	Unsorted waste
Products	None	Construction materials	Recycled resin*	Recycled resin*	Basic chemicals	Basic chemicals	Fuels & lubes	Fuels & chemicals	Syngas	Heat & electricity

Exxtend™ | Recreated to create

ExxonMobil

Source: ExxonMobil Plastic Waste White Paper

Exxtend™ technology aims to accelerate progress towards a more circular economy

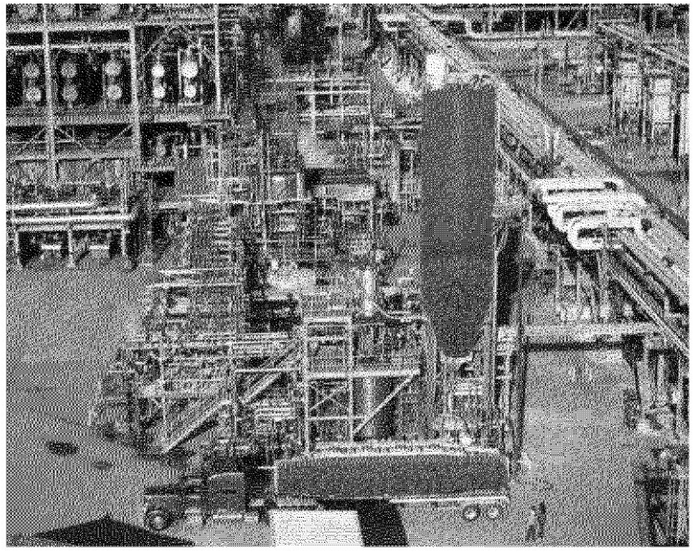


For illustrative purposes only.

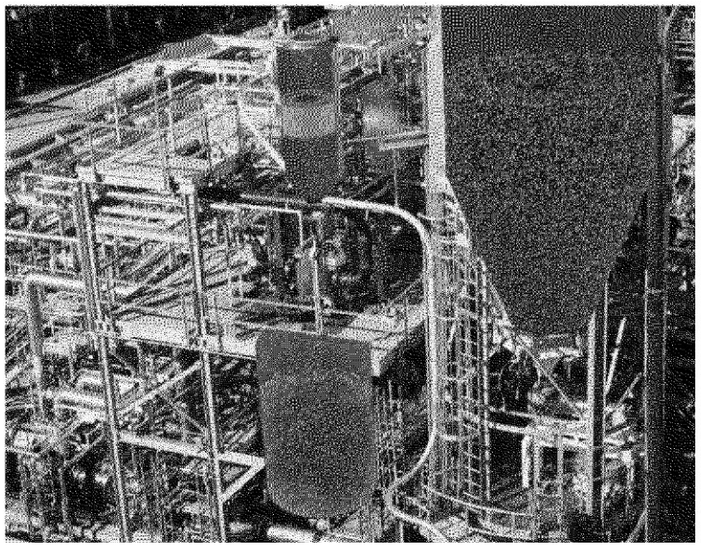
[1] Certified-circular plastics are virgin quality plastics that are accompanied by an ISCC PLUS "Sustainability Declaration" that matches the mass of virgin quality plastics that we sell to a corresponding amount of plastic waste that we transformed back into usable raw materials through advanced recycling.

[2] ISCC PLUS mass balance approach using the "determined by mass" option with "certified free attribution" applied. **Does not represent GHG emissions or recycled content.**

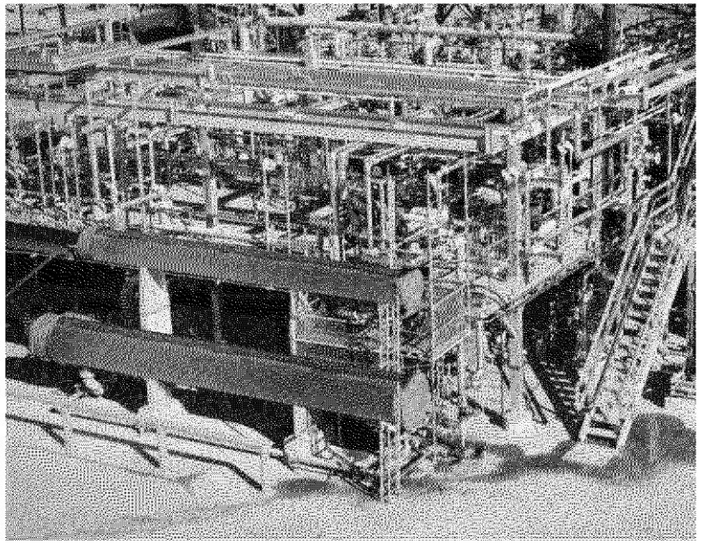
Exxtend™ technology for advanced recycling (1 of 2)



Truck transfers plastic feedstock into silo.

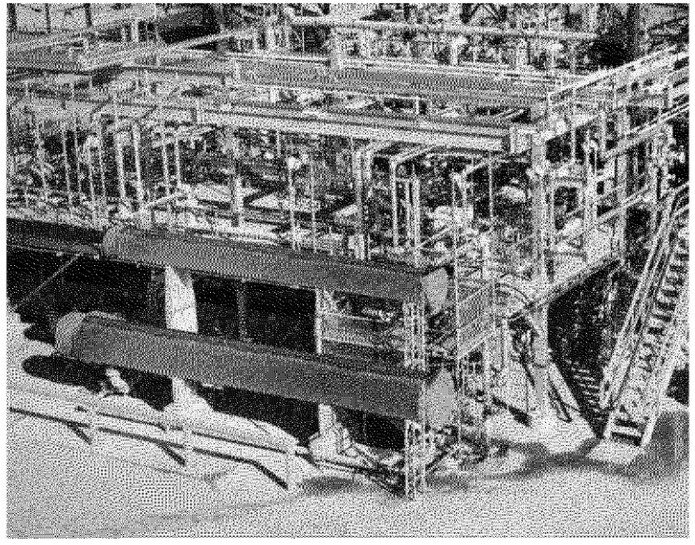


Feedstock passes through dust collector on way to tank where it is mixed with hydrocarbon liquids.



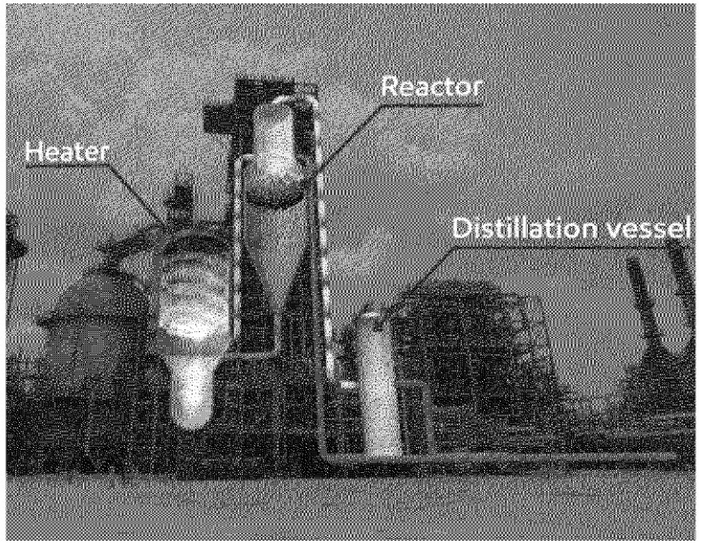
Plastic mixture then heated through a heat exchanger to improve viscosity.

Exxtend™ technology for advanced recycling (2 of 2)



Plastic mixture then heated through a heat exchanger to improve viscosity.

Plastic mixture moved to a reactor.

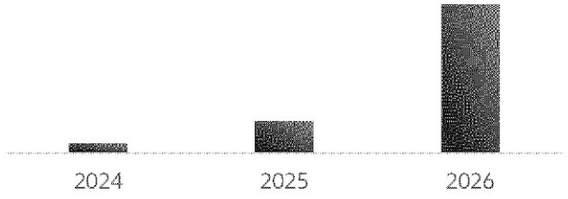


Plastic mixture thermally cracked to produce a full range of products; high value molecules sent to distillation vessel and further processed in an EM integrated facility.

Scaling technology started in Baytown, Texas

Ambitions for 500 kTa (~1B lbs) advanced recycling capacity by 2027, leveraging large integrated sites

Advanced Recycling Total Year End Installed Capacity



Certification through the International Sustainability and Carbon Certification (ISCC) PLUS process.
Numbers based on year-end capacity.
Planning basis subject to final investment decisions

- Large-scale operational advanced recycling facility by ExxonMobil
  Final investment decision on additional facilities
- Final investment decision on the new facility
- ExxonMobil sites under assessment for advanced recycling
- Ongoing collaborations on advanced recycling

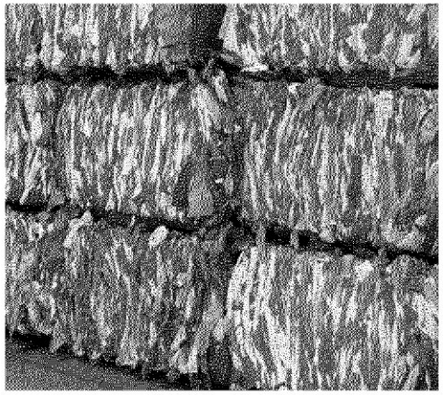
Exxtend™ | Recreated to create

ExxonMobil

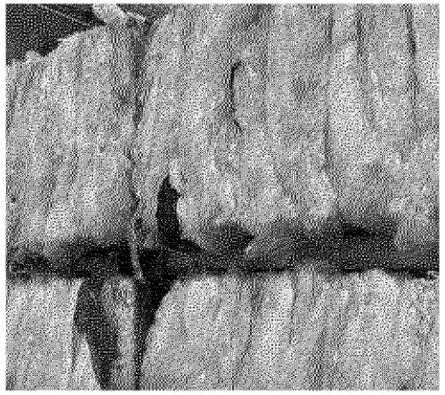
Widening the range of plastic waste that is recycled

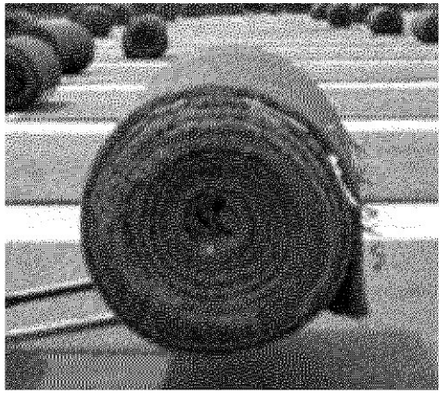
Plastic bags

Diaper material



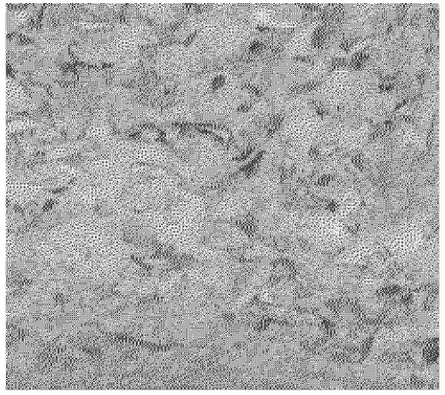
Packaging materials





Turf

Lubricant bottles



Medical waste

And many more plastics as we continue to broaden our feed specification....

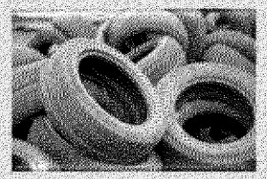
As of October 2024[1], we have processed over 70 million pounds of plastic waste through our Exxtend™ technology, avoiding other end of life disposition (e.g. landfill or incineration)

[1]*ISCC PLUS feedstock supplier self-declaration or sustainability declaration*

Alternative sustainable feedstocks landscape

Circular

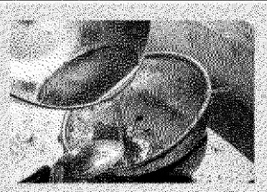
Mixed waste plastic



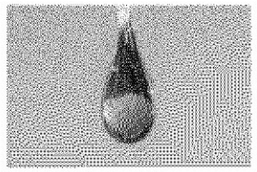
End-of-life tires

Waste textiles

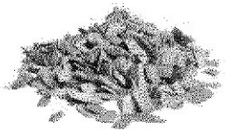
Bio-Circular



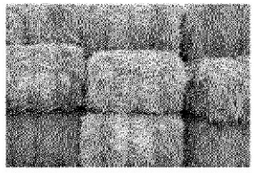
Used cooking oil



Tall oil



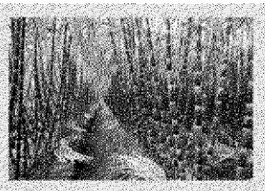
Forestry residues



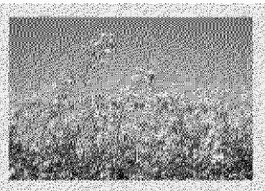
Straw

Bio-Derived

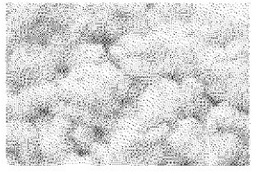
Corn



Sugarcane



Canola



Cotton

Wheat

EMPS commercial offering

EMPS Under consideration

Plastic-derived feeds have similar elemental constituents as fossil-derived feeds

Fossil-derived	Plastic-derived feeds	
Nitrogen	Yes	nylon, additives, UV stabilizers
Oxygen	Yes	PET, plasticizers, antioxidants, additives
Metals	Yes	additives, fillers, catalyst, pigments
Halogens	Yes	PVC, PVDC, process aids, surface contamination
Sulfur	No	not typically observed

Engineering Controls

- Conversion
- Hydrotreating
- Fractionation
- Water Wash
- Acid Treating
- Purification

Work Processes

- Contaminant Mapping
- Margin of Safety
- Feedstock Specification
- Process Monitoring

ExxonMobil