
ExxonMobil
Supporting a
Circular Economy

ADVANCING CLIMATE SOLUTIONS: THE "AND" EQUATION

"For too long the conventional wisdom about ExxonMobil was that we had to make a choice between meeting the world's energy needs or playing a leading role in the energy transition. That view has always been flawed.

The fact is, it is an 'and' equation, one in which we can produce the products societies need AND lead the world in reducing greenhouse gas emissions, our own, and others'. "

Source: Letter from the Chairman, December 2022

THE OPPORTUNITY AHEAD

1. **GREENHOUSE EMISSION REDUCTION ROADMAPS**
   Opportunities to reduce GHG emissions from existing facilities

2. **LOW CARBON SOLUTIONS**
   Investment across LA to reduce emissions using carbon capture, hydrogen power and biofuels

3. **INVESTING IN NEW PRODUCTS TO SUPPORT CONSUMER SUSTAINABILITY**
   Potential new investment supports circularity, sustainability, changing energy needs and global market demands.

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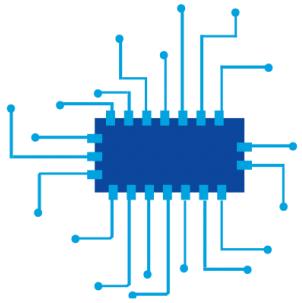
$250M INNOVATION SUITE

ADVANCED RECYCLING

ADDRESS PLASTIC WASTE



ULTRA-PURE ISOPROPYL ALCOHOL

SUPPLY DOMESTIC MICROCHIP PRODUCTION

NEW RESIN UNIT

SUPPORT DOMESTIC ENERGY PRODUCTION

Plastics can play a key role, making modern life possible

- Plastics demand expected to grow at or faster than GDP through 2050[1]

- Plastics help to enable performance and sustainability benefits across industries, from reducing vehicle weight and medical applications to food packaging (e.g. helping to extend shelf life) and greenhouse films

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] EM 2022 internal analysis
[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.

The global waste management challenge

- ~3 billion people worldwide are estimated to lack access to controlled waste disposal facilities[1]
- ~12 percent of the global municipal solid waste stream is plastic[2]
- Right now, less than 10% of plastic waste is recycled[3]
- Solutions will require innovation and global collaboration among the plastics value chain, governments, NGOs, and consumers

[1] United Nations - https://unhabitat.org/news/10-feb-2020/un-habitat-partners-with-wwf-to-tackle-global-challenge-of-waste-management-in
[2] World Bank, What a waste 2.0
[3] Source: (National Overview: Facts & Figures on Materials, Wastes and Recycling) EPA.com

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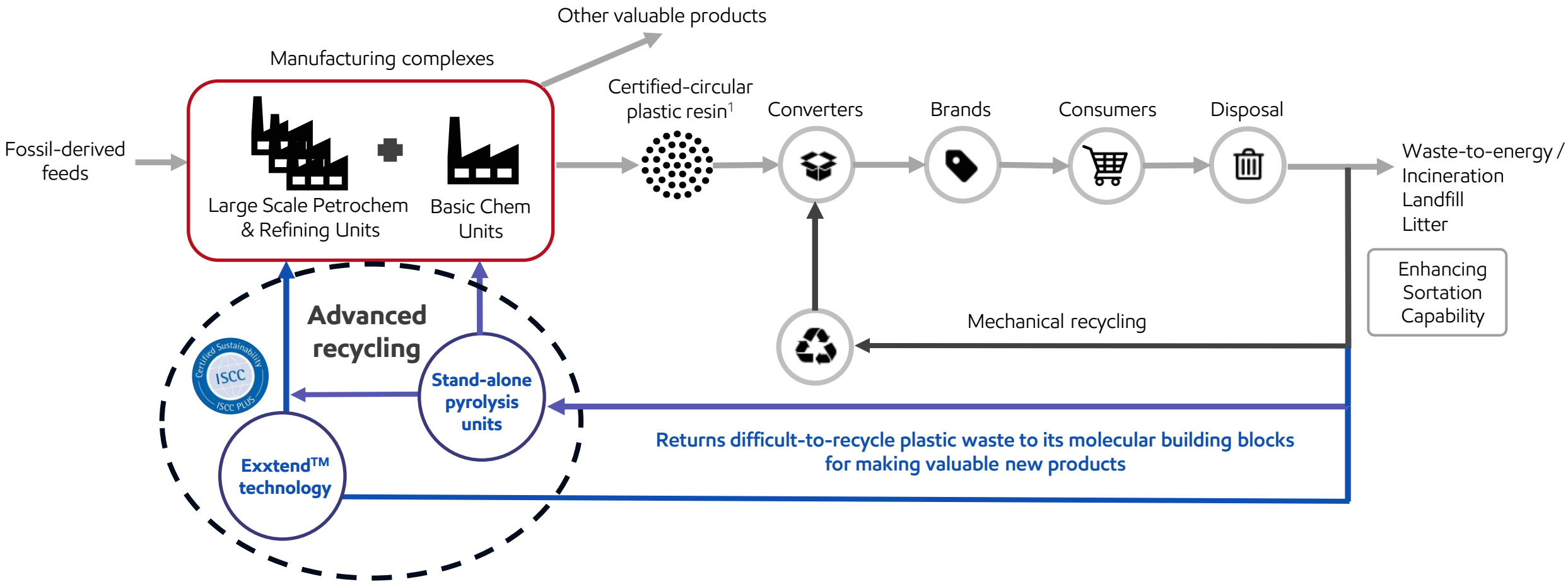
Exxtend™ technology for advanced recycling

Now operational in Baytown, Texas

- ✓ Leverages existing facilities to scale up quickly
- ✓ Widens the range of plastic waste that can be recycled
- ✓ Delivers plastics with identical performance and quality to those made purely from fossil-based feedstocks
- ✓ Helps meet customer and consumer goals for circularity

Advanced recycling can process a broader mix of plastic waste

Necessary complement to mechanical recycling



[1]Attributed via ISCC PLUS mass balance approach using ISCC PLUS v3.3. **Does not represent GHG emissions or recycled content.** ISCC PLUS v3.3

For illustrative purposes only.

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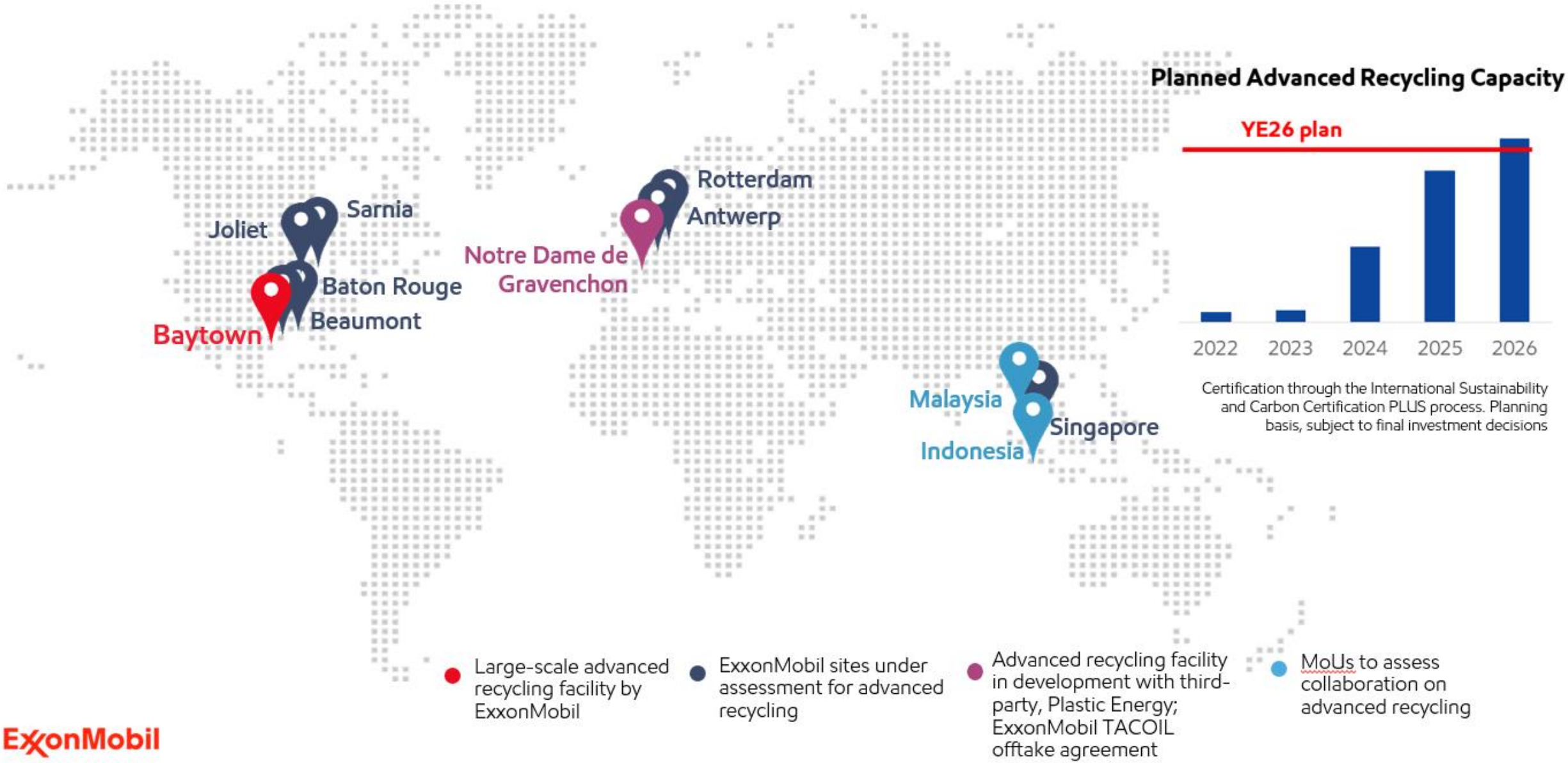
Scaling technology started up in Baytown, Texas

Plans for 500 kTa (~1B lbs) advanced recycling capacity by YE26, leveraging large integrated sites



Planned Advanced Recycling Capacity

Certification through the International Sustainability and Carbon Certification PLUS process. Planning basis, subject to final investment decisions

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Examples of plastic waste being processed in Baytown

Processing hard-to-recycle plastic waste that might otherwise end up in landfill or incineration

Widening the range of plastic materials society can recycle[1]

Mechanical and advanced recycling complementary

Material type	Single-stream plastics recovered for mechanical recycling[2,3]	Mixed-plastics desirable for Exxtend™ technology[4]
1 PET	• Monomaterial, easy to sort • Polymer properties amenable to M/R and food contact qualification	• Acceptable in quantities up to oxygen contaminant limit
2 HDPE	• Monomaterial, single source more common • Polymer properties amenable to M/R	
3 PVC	• Limited single source collection • Lack of monomaterial (additives)	• Capable of taking small amounts
4 LDPE	• Film collection & sortation more challenged • Polymer properties not amenable to M/R	
5 PP	• Sortation improving • Polymer properties less amenable to M/R	
6 PS	• Expanded PS foam collection, cleaning, densification is challenged	• Acceptable in quantities up to contaminant limits
7	• Not a monomaterial	• Acceptable in quantities up to contaminant limits (e.g., high nitrogen content from nylon and polyamides)

Target

Tolerated in feed mix

Challenge

[1]In communities with programs and facilities in place that collect and recycle the resulting product.
[2]Plastics Recyclers Europe: PET Market in Europe: State of Play – Production, Collection and Recycling Data 2018
[3]Prepared for ACC by More Recycling, US PCR 2020
[4]ExxonMobil data

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Collaborations to collect and sort difficult-to-recycle plastics

Working alongside government, customers and other industries

Our approach to scale: collaboration and technology

ALLIANCE TO END PLASTIC WASTE

cyclyx

HOUSTON RECYCLING COLLABORATION

ExxonMobil · lyondellbasell Advancing Possible · cyclyx · FCC Environmental Services

Collaborating on collection

Scaling recycling technology

Helping meet demand for circularity

TENCATE GRASS

Exxtend™ technology

ISCC International Sustainability & Carbon Certification

Berry

amcor

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Sealed Air, ExxonMobil, and Ahold Delhaize USA Collaborate on Groundbreaking Circularity Initiative

Sealed Air

Ahold Delhaize | USA

ExxonMobil


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