

ExxonMobil, Lyondell collaborate to make Houston a recycling circularity hub



Author [Sarah Schneider](#)  [Kristen Hays](#) 
Editor [Benjamin Morse](#) 
Commodity [Petrochemicals](#), [Shipping](#)
Topic [Environment and Sustainability](#), [Recycled Plastics](#)

HIGHLIGHTS

Partnering with Houston's largest recycling facility

Aims to increase collection rates

Sell recycled feedstock back to petchem makers

Listen to this article now

5 min listen

00:00

1.0x

-04:46

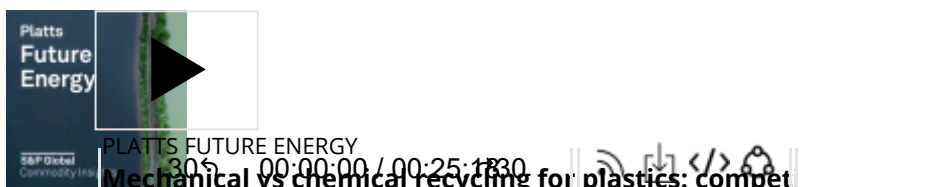
Powered by [Trinity Audio](#)

ExxonMobil and LyondellBasell have joined forces with the largest recycling facility in Texas and the city of Houston to increase used plastic collection rates, increasing available supply for both chemical and mechanical recyclers, a top ExxonMobil executive said.

"There's a lot of room for improvement, a lot of plastic in the Houston area," said Dave Andrew, vice president of new market development for ExxonMobil's chemical division. "We have petrochemical facilities suited to address this problem. If we can't do this in Houston, where can we do it?"

ExxonMobil announced Feb. 8 that it and LyondellBasell signed a memorandum Jan. 19 with FCC Environmental Services, which runs one of the state's largest material recovery facilities (MRF) the city of Houston, and Cyclix, a 75%/25% joint venture between plastic feedstock management company Agilyx and ExxonMobil. Cyclix matches used plastics with varying specifications to the proper chemical company.

The idea is to improve used plastic collection rates so FCC can sort and clean it and Cyclix can match it to both mechanical and chemical recycling efforts at ExxonMobil and LyondellBasell, Andrew said.



"The big focus on the collaboration is to expand access to recycling programs here in the city," he said, adding that he hopes Houston will develop into a circularity hub and serve as a model for other cities.

Houston's recycling potential is significant as many multifamily residences in the city, such as apartment complexes, currently have no access to recycling programs in the nation's fourth-largest city that also is near the

nation's largest cluster of petrochemical plants. This provides an untapped resource for a sector always in need of feedstock.

Neighborhoods with single-family homes where the city collects recycling have rates that are "not too bad," but can be improved, Andrew said, as well as post-commercial rates from businesses, hospitals, universities, and other major employers.

For ExxonMobil and LyondellBasell, such an effort could increase the amount of recyclable feedstock coming their way to process and sell to customers focused on ensuring plastic products they offer have recycled content.

Procter & Gamble, Coca-Cola, Nestle, and others that use plastic packaging routinely tell investors that the packaging has or will have a certain percentage of post-consumer resin by a stated deadline.

The latest collaboration was expected to increase the flow of recyclable material to those companies by working to increase collection through education campaigns, infrastructure investments, and increased access to blue bins.

Andrew said accurate data on local recycling rates was unavailable, but the national average is that 9%-10% of recyclable plastics are captured and recycled into new products, adding that Houston's rates were "significantly below" that average.

Partnership to boost advanced recycling supply

Another challenge in recycling is that even some plastic items that are collected might not find their way into new packaging due to high contamination levels, which can occur when non-compatible plastics are commingled or when containers still have high levels of food residue, such as a milk jug that still contains milk.

"Most of the collection systems have historically been designed for traditional recycling, and a lot of plastic gets rejected out of those systems because it's not clean enough," Andrew said.

That's where advanced recycling comes in, he said. Advanced recycling, also referred to as chemical recycling, is able to transform harder-to-recycle plastics such as flexible, multilayered packaging and polystyrene by breaking down plastic waste into its original monomers to produce virgin-like feedstock like ethylene.

High-value plastics, such as polyethylene terephthalate or high-density polyethylene, are typically solely designated for mechanical recycling, which involves cleaning used plastic, grinding it up, and using it to make new plastics. PET is used to make plastic bottles, and HDPE is used to make more dense plastics like shampoo bottles and coolers.

In October 2021, ExxonMobil and Cyclix announced plans to build a large-scale advanced recycling facility in Baytown, Texas, with an initial processing capacity of 30,000 mt/year of plastic waste. The facility is to be fully operational by year-end 2022, with plans to add an additional 470,000 mt/year of capacity by the end of 2026 across multiple sites around the globe.

Andrew said ExxonMobil will likely source a lot of recycled material for the facility from FCC's Houston MRF.