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Reaping Oil From Discarded Plastic

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Agilyx
An assembly of pipes and vessels developed by Agilyx cooks plastics into a gas and then condenses the vapor into long-chain hydrocarbons that can subsequently be converted into fuel.

Could oil companies soon be picking up your trash?

Agilyx, an Oregon-based start-up, says it has created a system that converts discarded plastic into crude oil. A prototype has been in development for 18 months, and the company says it hopes to start selling commercial versions in about nine months.

The system, an assembly of pipes and vessels that will cost around $5 million, essentially cooks plastics into a gas and then condenses the vapor into a soup of long-chain hydrocarbons that can subsequently be converted into diesel, jet fuel or other substances.

One factory module can turn 40,000 pounds of plastic into 130 barrels of oil a day, and larger modules are on the way, according to Bob Schwarz, Agilyx's chief financial officer. Roughly a gallon of gas can be squeezed out of seven to 10 pounds of plastic, he said.

While refiners would process landfill oil into final products, trash companies would largely own and operate the machinery to make the basic feedstock. Many systems would by default probably wind up on landfills near large cities. "Plastic is where the population is," Mr. Schwarz said.

Investors and large corporations are increasingly turning their attention toward technologies for recycling and "resource recovery" to capitalize on the growing tide of waste and rising prices for raw materials. Some describe it as a nascent golden age of garbage.

The total municipal solid waste in the United States has grown from 88.1 million tons in 1960 to approximately 243 million tons a year today, according to figures from the federal Environmental Protection Agency. Regulations provide further motivation: California recently started collecting a recycling tax of 5 cents per square yard on new carpet sales.

Waste Management, the Houston-based national waste pickup company, has invested in Agilyx and a number of other resource recovery companies and has begun to position itself as a resource services company as well, as opposed to your average garbage hauler. Total Energy Ventures international, the venture-capital arm of the French oil giant Total, and Kleiner Perkins Caufield & Byers have also invested in Agilyx.

Other novel start-ups in resource recovery include Modular Carpet Recycling, which can extract commercially viable nylon from old carpet, and Lehigh Technologies, which has retrofitted a mill for grinding expired pharmaceuticals to recycle rubber.

Ostara Nutrient Recovery Technologies, meanwhile, makes Crystal Green. It's not a powdered drink mix, but a fertilizer produced with phosphorus extracted from municipal sewage streams.

While virtually everything in waste streams can ultimately be reincarnated, plastic is particularly attractive. Two trillion tons of plastic now sit in landfills in the United States, accounting for around 25 percent of the nation's total plastic volume. The global volume of plastic grows 7 to 9 percent a year, according to industry figures.

If a trash hauler wants to start generating methane from organic waste piles, the plastic has to be extracted, Mr. Schwarz of Agilyx noted.

Only a fraction of the plastic in landfills is easily recycled. In some nations, "recycling" plastic actually means burning it for fuel, which creates an even bigger environmental hazard, said Kevin O'Connor, a researcher at University College in Dublin who has created a genetically modified organism that can recycle plastic.

Up to 35 percent of a high-quality polyethylene might be made up of recoverable hydrocarbons, Mr. Schwarz suggests.

Envion, a competitor, also has created a system for cooking plastic into fuel, while Axion International produces railroad ties and other building products with old plastic.

Mr. Schwarz would not say how much this trash crude would cost. But he said that the system would provide owners with a 25 percent rate of return on their investment.

Conventional crude sells for $85 to $95 a barrel; other company executives have suggested in recent months that the system could produce crude for around $52 a barrel and even less over time. I guess we'll see.

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