

Coastal Resources solid waste plant in Hampden up and running

\$70 million facility is billed as the 'first of its kind' in U.S. That's true, but facility directors and state regulators say its technologies have been proven before.

By Glenn Adams

Like a grapple in an arcade game, a life-size claw grabs a fistful of mixed trash from a heap below. At the side is a maze of steel ladders, conveyor belts tilted at various angles, a web of supporting struts and gaping storage bins. The scene's been described as a game of Mousetrap designed by Stephen King.

But Fibrigh's new Coastal Resources recycling plant, situated in a massive gray building covering three acres, is no game. One-of-its-kind in the country, it stands as model for a greener future in Maine, gobbling up trash by the ton as it transforms Mainers' household throwaways into useful products that can be sold.

Coastal Resources of Maine's new facility in Hampden will process municipal solid waste for 115 communities in eastern, central and northern Maine using Fibrigh technology to convert waste into value-added products and bio fuels.

Considering Maine's overall recycling rate of just under 37 percent, the 80 percent recovery rate at Coastal Resources represents a startling contrast. It also represents an entirely new way of thinking about solid waste by redefining it as a resource, says Fibrigh.

"To be converting your garbage into recyclables and other marketable products is just fantastic," said Karen Fussell, board president of the Municipal Review Committee, whose work resulted in the innovative project opening in Maine. "We couldn't be more excited about it."

The \$70 million Fibrigh plant is designed to process up to 180,000

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RECYCLING: THE BIG PICTURE

Maine produced 1.17 million tons of municipal solid waste – a little less than a ton per person – in 2017, according to a state Department of Environmental Protection report to the Legislature. The number includes ash left from incineration, waste that's composted or anaerobically digested, but not construction and demolition debris.

The U.S. recycling rate in 2017 was 34.5%, according to waste-reduction tech company Rubicon. Maine's rate is a little better at 36.79%, says the state Department of Environmental Protection.

America's leading city for recycling is San Francisco, which boasts an 80% landfill diversion rate. Indianapolis is the largest city in the country without universal curbside recycling, and winds up near at the bottom of the heap with its 7% recycling rate, says the Indianapolis Star. Only New Orleans and Detroit have lower rates, the newspaper says.

Plastic recycling is especially hard hit by China's curtailment of accepting imported waste, says Waste 360. America's 9.1% plastic recycling rate of 2015 was expected to drop to 4.4% in 2018, and to 2.9% in 2019 if other Asian countries follow suit with a cutoff, the magazine says.

tons of municipal solid waste per year from members of the MRC, which was formed in 1991 to help Maine communities restructure disposal contracts. Coastal Resources' project will also accept waste from non-MRC communities if those arrangements are made, said Shelby Wright, director of community services for Fibrigh/Coastal Resources.

MRC communities produce about nine percent of the municipal solid waste produced in Maine, according to the state Department of Environmental Protection.

In proven technologies that have yet to be coordinated under a single roof, Fibrigh's process allows the plant to recover much of the waste that until 2018 would have gone to an incinerator.

How it will work

The Coastal Resources facility pulls

out recyclables from regular trash and then upcycles the rest into marketable products, giving towns that have never been able to recycle or improve their recycling rate a chance to do so, said the MRC's Fussell, who is also finance director for the City of Brewer. The Coastal Resources plant can also accept single-stream (or "no sort") recyclables for a discounted tip fee from communities that have those programs.

What's more, Coastal Resources will continue to search out ways to convert even more throwaway material into useful products. "To me, it's like recycling on steroids," said Fussell.

The Hampden plant accepted its first loads of municipal trash and recyclables from 10 towns in late April. It was accepting waste on an on-call basis while bugs were being worked out of the process and was expected to begin accepting waste from all 115 MRC members by the end of June, said

Fussell.

MRC has a 15-year master contract with Coastal Resources to process municipal solid waste from its 115 member communities. Member communities must contract separately with Coastal to process single-stream recyclables. MRC owns the land on which the pioneering recycling facility is located.

For three decades, the MRC facilitated waste contracts for 187 Maine towns and cities with Penobscot Energy Recovery Company in Orrington. The contract with PERC ended in 2018. Fussell said the MRC believes a relationship with PERC is not sustainable in its current form.

In 2013, the MRC started looking for a technology to process municipal solid waste other than burning it. It advertised for proposals from companies in and out of the United States and ultimately settled on Fiberright.

Based in Maryland and the United Kingdom, Fiberright has developed a system that not only seeks to squeeze value out of every ounce of trash, but also presents a recycling opportunity for towns that have dropped their recycling programs amid ongoing instability and unpredictability in the recycling



Shelby Wright, community services director for Fiberright/Coastal Resources of Maine, shows fiber made from waste paper.

(Photo by Glenn Adams)

world.

Its system “deconstructs the waste stream, segregates the components, recovers material, and processes it to recover even more material creating

value-added products such as bio gas and bio fuel from waste that would normally be discarded,” the company says.

(Coastal Resources will not accept out-of-state waste or construction and demolition debris. Items such as tires, mattresses and couches are also not accepted.)

Overall, “we’re pulling more waste out of trash than from single stream,” said Wright, the community services director. By doing so, homeowners who produce their share of waste no longer have to stew over whether this pizza box or that plastic container is fit for recycling.

“For even the best recycler, recycling is hard,” said Wright. “Coastal Resources takes the guesswork out of it.”

Disposable diapers

Consider the used diaper: If your trash goes to Coastal Resources, you won’t have to think twice before tossing disposable nappies into the mix.

Plastic films in the diaper are separated in the pulping process and recovered for film briquettes. The absorbent material is used for pulp production. Finally, the organic material is utilized in the anaerobic digestion process, in

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Tanks used in recycling process outside of Fiberight/Coastal Resources plant in Hampden. (Photo by Glenn Adams)

which microorganisms break down biodegradable material in the absence of oxygen. In the end, three value-added products are produced, Wright explained.

Waste is delivered to the Coastal Resources using current local waste-collection systems. Once the trucks are weighed and unloaded, waste is debagged, placed on a conveyor and separated according to size. Dry textiles are recovered before the pulping process begins. At the “wet end,” a pulper breaks down food waste, pulls out contaminants, and converts organics to biogas, which will be piped directly into the Bangor Natural Gas

pipeline.

Glass is turned into aggregate for public works projects, such as what’s used at landfills and construction projects. Items like clean plastic shampoo and clothing detergent bottles are baled and turned into compressed plastic briquettes, for use in films and plastic bags.

The process also turns out fiber, which can be used as solid fuel or molded paper products. Cellulose pulp can be used to make envelopes, office paper, mixed paper and other fibrous materials. (Cellulose accounts for one-fifth of the waste stream.)

Clean cardboard, steel and alumi-

num are baled for resale.

Fiberight has agreements with plastics and oil companies, and with local scrap merchants, to buy the cellulose pulp and plastics from the plant, Fiberight CEO Craig Stuart-Paul told Waste 360 magazine. There is also an agreement to buy natural gas generated at Coastal Resources.

Coastal Resources, a customer of Emera Maine, pulls power off the grid to run the plant and will run its boilers off the biogas that it produces internally.

Waste from schools, hospitals and commercial organizations not sponsored by a municipality for waste management is not being accepted at Coastal Resources until additional reviews are conducted by the Maine Department of Environmental Protection, said Victoria Eleftheriou of DEP’s Bureau of Remediation and Waste Management.

But overall, the DEP has given its blessing to the project. While the separate components of the plant use existing technology, they haven’t yet been coordinated in a single setting.

“The technology is tried and true,” said Eleftheriou. “It just hasn’t been put together under one roof.”

Fiberight calls its Hampden operation “the first of its kind in the nation.” The company’s website lists other projects including a demonstration facility in Lawrenceville, Va., and a pilot plant in Southampton, England, which houses a small-scale operation.



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“The plant itself is capable of pulling out those things that have no market,” said Fussell. That includes those ubiquitous single-use grocery store bags (soon to be banned in Maine) that often end up blowing on streets and into waterways, and plastic films that cover water-bottle cases and paper towel packs.

Site visit

During a recent visit to Fiberight, Wright showed what happens to those plastic menaces: They’re turned into pellets that can be resold or briquettes that can be used as fuel. Wright also spilled out a handful of fiber ground from paper, now ready to be sold and processed into things like molded paper trays.

Coastal’s residuals – waste that cannot be processed – will go to Crossroads Norridgewock, under an agreement due to end on March 31, 2028, and which may be extended.

Citing U.S. Environmental Protection Agency figures, Coastal Resources says Maine recycles 36% of its waste. That means valuable materials such as food, plastics and paper “are remaining in household waste destined to be lost forever,” says Coastal Resources.

With only about a third of the population committed to recycling, Fiberight is set up to process waste from the remaining two-thirds, said Wright. What’s more, it sets into place a process that provides a solution with little or no change to consumer behavior.

“We’re being forced as a country to deal with the unseen waste problem we’ve been generating,” said Wright.

Bangor projects savings

Bangor is among the communities that are signed on to use the Coastal Resources facility. City Councilor Joe Baldacci said the city will save \$1 million over the life of the contract. It is “environmentally sound,” Baldacci said.

“This is an important step forward. As one of the councilors who voted to leave PERC and go with Fiberight it was an informed risk,” Baldacci wrote on Fiberight’s Facebook page. “I’m hoping Fiberight succeeds.”

Having a facility that can handle recyclables locally will save many communities’ trucking expense, not to mention the environmental impact, associated with sending them well out-

side of the region to be processed, said Fussell.

Until now, single-stream recyclables from northern and central Maine had to be transported to ecomaine in Westbrook or Casella’s materials recovery facility in Lewiston for processing.

“At Coastal Resources everything is integrated,” Fussell said.

The Finance Authority of Maine, which helped with the Fiberight plant’s financing, estimates communities using the Coastal Resources will save \$24 million over the first 15 years, according to the Waste Dive e-publication.

Fiberight’s Hampden plant was first scheduled to open in April 2018, but that was delayed by winter weather and litigation. Also, a lack of clarity over what waste would be accepted had to be sorted out.

In the meantime, a downturn in the recyclables market depressed prices paid for recyclable waste and prompted many communities to abandon their trash recycling programs. In May, Auburn Mayor Jason Levesque urged the city to look into dropping its recycling. Brunswick also considered it, but council turned the idea down.

Maine communities representing 180,000 people – 14% of the state’s population – have no recycling or have cut back their programs, according to the Natural Resources Council of Maine.

Despite the gloom over low prices, new optimism is brewing about the fu-

ture demand for recycled products. As waste piles grow, American businesses including paper mills and plastic processors are retooling plants to accept the stuff that might have been shipped off to China.

The nonprofit Recycling Partnership, which leverages corporate funding to help states and communities to recycle, told The Associated Press in May that about \$1 billion in investments on American paper processing plants had been announced during the previous six months.

The Northeast Recycling Council says 15 American and two Mexican paper companies have announced plans to expand their capacity to process recycled paper.

The trend has been felt in Maine, where a subsidiary of Hong Kong-based Nine Dragons Paper has invested in paper plants in Old Town and Rumford. ND Paper planned to reopen the paper mill it purchased in Old Town, and last year bought and invested in a mill in Rumford.

ND Paper’s Brian Boland said that the restrictions on waste paper by the Chinese enabled the company to secure a long-term source of fiber for its mills. Recycled plastics and scrap metal processing have also seen a boost in some states.

China’s import restrictions also give Fiberight an opportunity to showcase a concept that elicits skepticism from many in the industry, Waste Dive says. ■

