

CRMC Dartmouth Bioenergy facility celebrates with ribbon cutting ceremony



(Photo by Josh Souza)

A ribbon cutting ceremony was held today at the Crapo Hill Landfill in Dartmouth, Massachusetts to mark the entry into commercial operation of the CRMC Bioenergy Facility, an anaerobic digestion project developed by Massachusetts-based Commonwealth Resource Management Corporation ("CRMC") in cooperation with the Greater New Bedford Regional Refuse Management District (the "District"), the Landfill owner.

The Bioenergy Facility will produce biogas for use as a supplemental fuel at an existing 3.3 MW landfill gas-fired electric power generating facility at the Landfill that is owned and operated by a CRMC subsidiary. The Bioenergy Facility is the first of its kind to be sited at an operating Massachusetts landfill, and the first developed in the state to produce biogas for use in a pre-existing landfill gas-to-energy facility.

Officiating at the ceremony were US EPA Regional Administrator Curt Spalding, Dartmouth Town Administrator David Cressman, New Bedford Mayor Jon Mitchell, the District's Executive Director, Scott Alfonse, and CRMC's owners George Aronson, Tom Yeransian, and Anton Finelli.



Curt Spalding , Regional Administrator, U.S. Environmental Protection Agency Region 1.
(Photo by Josh Souza)

"We developed this facility to increase the production of renewable resource-based electric power while providing a cost-effective option for businesses and institutions in southeastern, Massachusetts to comply with the state's recently-imposed ban on the disposal of commercial food waste and other organics", Mr. Finelli, said. "We're confident the project can serve as a model for similar projects elsewhere in New England".

"This facility compliments Dartmouth's sustainability agenda and programs", said Dartmouth Town Manager David Cressman.

Added Jon Mitchell, Mayor of the City New Bedford, which along with Dartmouth is a member of the District: "The Bioenergy Facility is a great example of the kind of innovative projects the City of New Bedford and the Refuse District are committed

to pursuing because not only do these types of projects generate clean, renewable energy but they also conserve taxpayer dollars. This project is especially exciting in that we are taking thousands of gallons of food waste, that would otherwise be discarded, and essentially turning it into energy."



(Photo by Josh Souza)

The project is being developed in two phases. In its initial phase (the "Pilot"), the Facility will accept approximately 3,000 gallons per day of the targeted organic wastes for processing and digestion in a digester with 100,000 gallons of holding capacity. The quantity of biogas expected to be produced through Pilot operations can be utilized within the current power generating capacity of the existing landfill gas facility.

If successful, the Pilot scale project will be expanded 10-fold to enable processing and digestion of up to 30,000 gallons per day of feedstock in a digester with 1.0 to 1.2 million gallons of holding capacity . The quantity of biogas expected to be produced through this anticipated second phase of project operations would be sufficient to support a 25 percent increase in the generating capacity of the existing

landfill gas-fired power plant – from 3.3 MW to 4.1 MW.

The two facilities will operate symbiotically in what is often referred to as a “virtuous cycle”. While biogas produced by the Bioenergy Facility will help fuel the landfill gas facility, some of the electricity produced at the power plant as well as heat recovered from its engine jacket cooling system will be used to satisfy the Bioenergy Facility’s electric and thermal energy requirements.

In addition, the Pilot phase of the Bioenergy Facility project will be used to test the feasibility of making beneficial use of some portion of the residuals from the anaerobic digestion process within existing operations at the Landfill. The beneficial uses to be demonstrated include (1) the provision of a biologically enriched admixture for yard waste composting, (2) displacing water as the source of moisture in the production of daily landfill cover material, and (3) stimulating landfill gas production and capture through controlled inoculation of digestate in a previously closed area of the Landfill.

The technology to be employed by the project to convert organic feedstocks into biogas and other substances can be generically described as continuous feed, wet, mesophilic anaerobic digestion. The facility is designed to co-digest materials that have a high potential for biogas production, such as fats, oils and grease (“FOG”) and food waste with controlled quantities of waste-water treatment plant sludge. The design enables the facility to separately receive and store, and then thoroughly mix, inoculate, and heat these materials before dosing them into a digester on a continuous basis to accelerate the various biological processes that result in the generation of biogas and stabilization of the digested materials (“digestate”).

All of the feedstocks will arrive at the facility in tanker vehicles or enclosed containers, and will be pumped directly

into underground storage tanks prior to processing in a system of enclosed vessels, pipes, and pumps. Since the process does not involve open delivery or storage of the feedstocks, or handling of the materials on a tipping floor, the potential for generating nuisance odors has been minimized. Also, excess air entrained in the process system, which may be odorous, will be used as combustion air in the power plant, rather than vented.

In addition to CRMC's own capital investment, the Bioenergy Facility project is being funded in part by grants and loans from the Massachusetts Clean Energy Center, the Massachusetts Recycling Loan Fund, and the U.S. Department of Agriculture Rural Development agency. Furthermore, the Massachusetts Department of Environmental Protection has made a grant to the District in support of the project. Operation of the Bioenergy Facility is expected to assist the District in adapting to an impending ban on the disposal of food waste generated by commercial sources, thereby helping to ensure its long-term position in the regional solid waste marketplace.