

FOOD WASTE TO ENERGY USING BAE™

ANAEROBIC DIGESTION/CHP CASE STUDY

FACTS

- Average Daily Flow of 6 MGD
- Secondary Treatment Process
- Two Digesters
- Cannon Mixers



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Food Waste being delivered to the facility.

TREATMENT OVERVIEW

This WWTP is positioned in an area that is home to many Food Processors. The liquid pumped food-processing waste was identified early in the project as a valuable input for creating gas. This is especially true of food-processing waste that is high in fats, oils and grease because this type of waste is the highest producer of gas within the digester out of the three inputs (FOG, other food waste and cow manure).

The project site features a receiving station for trucks to off-load the FOG, manure and food waste into a heated concrete holding tank. The off-loaded material flows first through a "rock-trap" (built in-house) which captures large, heavy objects that may have found their way into the waste stream. The heavy objects fall to the bottom of the rock trap and are removed from the pumped waste. From there, the remaining liquid waste passes through a "Muffin Monster" which grinds any smaller solid pieces into a more liquified state, making them easier to break down. Next, they run through two grinder pumps before it enters the holding tank where it is heated and mixed before entering the digester. A bio filter was also constructed so that the air permitting issues were completely satisfied.

Construction of the food waste receiving station and collateral digester equipment (heat exchangers, etc.) started in September and was completed by December. By the end of December the receiving station began accepting food waste, fats, oils and grease. It is currently processing them and continuously generating revenue for the facility.

PROJECT INTRODUCTION

The New Jersey Department of Agriculture received a federal grant to work with a Wastewater Treatment Facility. The facility planned to build a Food Waste Treatment System that would utilize an inactive Anaerobic Digester at the treatment plant. With Prodex's assistance and by using existing infrastructure, the project negated the need to spend \$3- \$5 million on constructing an entirely new digester from the ground up. The staff at the plant also played a key role in keeping costs down due to their special skill sets that kept sub-contracting the creation of the new facility to a bare minimum.

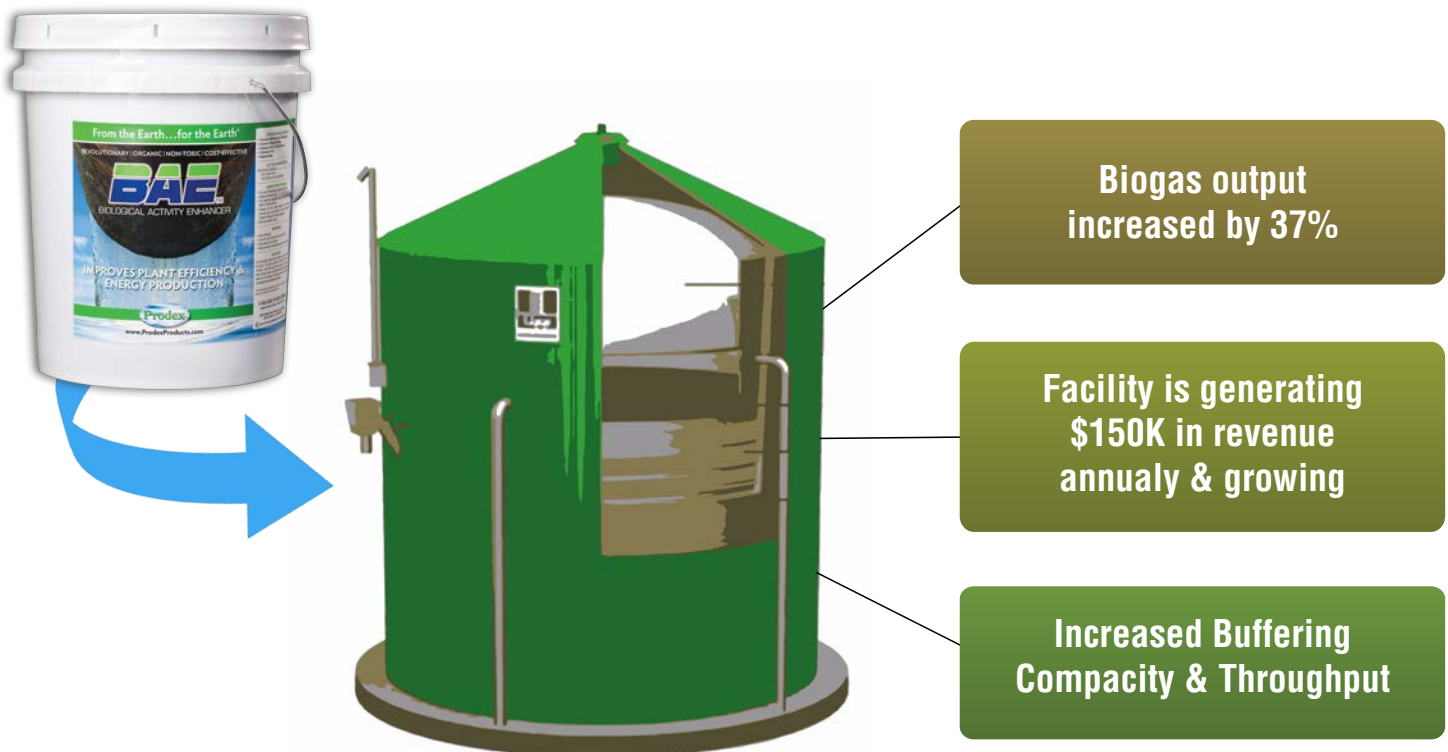
This project provided an opportunity to create a tangible, working apparatus to demonstrate whether food waste and manure (provided by food processors and farmers) could be used efficiently and effectively to create gas used to power a co-generation unit that supplies electrical power to run the Authority's sewage-treatment operations. Through Prodex's leadership, a team was created with all of the project stake holders. The combined unique skills and cooperation of the team brought the project to fruition. **This very successful collaboration allowed the utility to realize an annual net profit of \$150K/year.**

RESULTS SUMMARY

The bio-solids that were being treated were supplemented using **BAE™ by Prodex®**. The use of BAE™ stabilized the materials being treated and as a result, the digester was creating significantly more gas to run the co-gen unit than before the project was undertaken.

By using BAE™ in the digester:

- **BIOGAS OUTPUT INCREASED BY 37%**
- **FACILITY IS GENERATING \$150K IN REVENUE PER YEAR & GROWING**
- **PLANT IS ABLE TO RECEIVE AND PROCESS EXTERNAL MATERIALS EFFORTLESSLY DUE TO INCREASED BUFFERING COMPACITY & THROUGHPUT**



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