Lowell biogas plant making electricity

Developer has a second anaerobic digester project near Coopersville.

February 13, 2015
| By Pete Daly |

Greg Northrup, left, and Greg Pierce estimate the anaerobic digester will generate 800 kilowatts of power for Lowell customers. **Photo by Michael Buck**

Greg Northrup, left, and Greg Pierce estimate the anaerobic digester will generate 800 kilowatts of power for Lowell customers. **Photo by Michael Buck**

If the lights seem brighter in Lowell this week, it might have something to do with FOG, or maybe salad dressing.

The Lowell Energy Anaerobic Digester — LEAD LLC — is now or will soon begin generating up to 800 kilowatts of power that will be purchased by the city-owned utility, Lowell Light & Power, and supplied to its 2,600 electricity customers.

The feedstocks at the start of the generation process are FOG — fats, oils and grease — plus salad dressing residue from the Litehouse Foods plant in Lowell and dairy farm waste. FOG is a liquid byproduct at restaurants and food-processing plants that often must be trucked to a landfill for disposal because it cannot be processed by municipal wastewater treatment plants.

The LEAD facility, 625 Chatham St., Lowell, uses a fixed-bed anaerobic digester designed and built by enCO2, a German company, to convert organic wastes into methane or "biogas," which is burned to drive the combined heat and power generator that makes enough electricity to power 800 homes, according to Lowell Light & Power General Manager Greg Pierce.

LEAD will provide enough alternative renewable energy to far exceed LL&P's Renewable Portfolio Standard requirement of 10 percent by 2015, part of the Michigan Clean, Renewable and Efficient Energy Act signed into law in 2008.

In addition to FOG and Litehouse Foods waste, LEAD also uses thousands of tons of sand-separated cow manure from Swisslane Farms in Alto.

LL&P owns the property the LEAD facility sits on, a former factory site now known as the Lowell Energy Center. However, LEAD was developed by and is owned by Sustainable Partners LLC of Grand Rapids, known as Spart. It is a for-profit business that develops alternative and renewable energy projects, started in 2011 by Pam Landes and partner Greg Northrup.

There are federal tax credits available for renewable energy project investments, but the credits are not available to nonprofit or government entities.

"That's one of the reasons we partnered with LEAD," said Pierce, who explained the city first came up with the concept of a renewable energy plant several years ago after the state energy law was passed. The tax credits will significantly reduce the end cost of the LEAD project.

Pierce said after five years of tax credits, the generating plant can be sold to the city.

"The plan is we would purchase the facility from LEAD and own it outright," said Pierce. He said the price would be at a discount from the original investment, due to the tax credits.

No funds from the city went into the LEAD project, although LL&P did make some improvements to the real estate it leases to LEAD. The project was a $6 million investment arranged by Spart.

Pierce said once the LEAD is in full operation, the additional electricity it supplies will push Lowell Light & Power's renewable energy use to almost 20 percent.

"So if the renewable portfolio standard for Michigan increases, or there is ultimately a federal renewable portfolio standard at that level, then we would be in good shape," said Pierce.

At that point, said Pierce, the Lowell utility will probably be "a local utility that has one of the highest percentages of renewable energy in their portfolios."

Litehouse, a major employer in Lowell, has built a pipeline to the LEAD facility a few blocks away to move its salad dressing residue to the anaerobic digester. Pierce said that up to now, Litehouse had to separate its liquid waste stream at the plant and have the solids hauled by tank truck to a landfill every week "at considerable expense." The cleaner liquid that remained was piped to the Lowell wastewater treatment system. Now all the liquid waste comes directly to the biodigester where it is turned into energy.

The facility also collects fees from commercial waste haulers that bring in FOG from restaurants and food-processing plants all over West Michigan.

With a peak output of 800 kilowatts, "we're small compared to the Consumers Energies of the world," said Northrup. But, he added, "We're making good use of lots of fats, oils and grease that used to go into our landfills."

Development and construction of LEAD LLC involved Rockford Construction, Williams & Works for the wastewater processing, FHC mechanical contractors, Feyen Zylstra electrical contractors and Concept Design architectural services.

In December, Spart announced it had received a contract to develop its second project, West Michigan AD, a 1.4-megawatt anaerobic digester to be built near Coopersville. It will be on the Beaver Creek Farm, using cow manure and FOG, with some of the electricity used by the farm and the rest sold to Consumers Energy. Bill Henke, who owns Beaver Creek Farm, will also own West Michigan AD LLC.

“A biogas plant is a natural fit for baseload distributed generation. We can count on the cows for a constant supply of feedstock, which allows the plant to produce energy 24/7/365,” said Northrup. He also noted the valuable renewable energy credits and carbon credits are transferrable to a third party.

Northrup mentioned that as manure decomposes, it produces methane, a greenhouse gas with 21 times more global warming effect than carbon dioxide. The methane from manure that would have been released into the atmosphere is captured in the digester and converted to energy.

Henke noted there are other benefits to his farm in addition to the revenue from selling the electricity.

“We retain the nutrients for land application but lose the odor. We reduce our volume of manure since some of it is consumed in the digester, and there’s other things like the potential to use the solid output of the digester to bed cows and just a general reduction in the hassles of manure management.”

The project was selected as one of four on-farm digesters for the Consumers Energy Experimental Advanced Renewables Program.

Consumers Energy is planning on a total of 2.6 megawatts from anaerobic digestion.

“We have been interested in a digester for a long time. It just finally made sense when Consumers opened up the EARP with a reasonable price for purchasing power,” said Henke.

For more information on the Lowell Energy Anaerobic Digester, go to lowellenergyad.com.

Pete Daly

Pete Daly is a Grand Rapids Business Journal staff reporter who covers small business, banking and finance, food service and agriculture and government. Email Pete at pdaly at grbj dot com. Follow him on Twitter @PeteDalyGR