

**Exeter Agri-Energy and Agri-Cycle
Presentation to the Northeast Digestion Roundtable
By Sarah Wintle and Greg Williams
April 6, 2018**

NOTES

Attending: 38 people, including the two speakers and the NEBRA organizer.

Sarah and Greg provided some history:

- Exeter Agri-Energy (EAE) started in 2011 as an added venture of Stonyvale Farm.
- Agri-cycle formed in 2013; it is the collection and transportation
- Stonyvale Farm currently has over 2000 cows and is milking ~1200. The farm was started by Sarah's grandfather, and all of these businesses still involved the family. Sarah's brother Adam is the General Manager. There is plenty of manure for the digesters.
- There were 2 400,000 gallon digesters for the manure and food scraps, etc. until last year.
- In 2017, there was an expansion: a new 2.2 million gallon digestion dome was added. Capacity is now 3 million gallons. Originally, only liquid wastes – manures, etc. were taken in; now taking more solid food waste too.
- Greg is sales manager for Agri-Cycle

EAE – creating methane and renewable electricity through anaerobic digestion

- Without the cows, this would not be possible. They provide a steady, stable feedstock.
- Added a 3rd engine when the new 2.2 million gallon digester dome was added last year. This adds more redundancy. This is now a 3 MW facility, with the new engine.
- With the new dome, now producing 50 cubic yards of animal bedding per day. Solids separation is in separate building, using a press to dewater. Liquid goes to manure storage for cropland use by Stonyvale.... Solids are used for cow bedding.
- At the same time as the new digestion dome, they added an expanded food waste storage area.
- A depackaging machine was installed 2 years ago. They recently added a secondary depackaging machine that reduces water in the packaging waste. Packaging waste goes to EcoMaine where it is converted to energy (incineration to energy).
- PLCs tie the engines and all together. Also added recently was a shop for maintenance and parts.
- They added 2 new staff this year – a staff person for the receiving building and an additional technician for the engines.

Agri-Cycle

- Located in Scarborough now; it was in Portland
- In charge of collection and transportation of feedstocks from all around ME, much of NH, some of eastern MA, and even RI and VT
- They have liquid and solid collection trucks and dump trailers (including rear-loading packer trucks and three 9,000-gallon tanker trucks that go from RI to NB) – a wide variety of containers to transport various solids and liquids. “Little we can't collect at this point.” The majority of food waste is collected in 32- or 64- gallon totes.

- Depackaging provides for far more service options
- Have contracts with food shipping centers, supermarkets, hospitals, universities, coffee stops, restaurants, etc. They take in FOG, biodiesel, deicing fluids.
- They also work with Androscoggin Council of Governments at region transfer stations (Bethel, Rumford, etc.) – totes are provided for residents to put food scraps in. Agri-Cycle is receiving an Environmental Achievement Award for that next week.
- Partnership with EcoMaine – Portland is the largest community involved in EcoMaine; pilots are being done for curbside collection of food scraps from residents.
- EAE and Agri-Cycle work as one. Coordinate well.
- There is a lot of capacity with the new digester, so they are extending routes and adding routes and working hard to bring in more food scraps.

Discussion

Q: What percentage of food scraps are taken in by state?

A: Vast majority from ME.

Q: Any break-even point in terms of transportation distance?

A: There is an outer limit in terms of distance... going beyond where they are now would not make any sense.

Q: What are the tipping fees?

A: Tipping fees price structures vary a lot.... There is no one number. Dealing with packaged food has to include the cost of depackaging and extra handling. Liquids and solids are different and have different tip fees. And the energy value of different feedstocks is included in pricing; the energy values are as follows: manure & deicing fluid < food waste mix < FOG < glycerin

Q: Does all the food waste collected go to the Stonyvale/EAE?

A: Yes, the vast majority does. Especially since the new digester. But Agri-Cycle does have back-up with LAWPCA, and they can take brewery waste and deicing fluid and other things there when they can't deal with it (these lower-energy materials fit the digestion at LAWPCA better). LAWPCA has worked with Agri-Cycle – good mutual benefit. Has helped LAWPCA try a variety of materials in their co-digestion work. They also worked with VT Tech College, bringing some waste to them in the past.

Q: Where are the back-end products used?

A: All used at Stonyvale Farm.

Q: Any materials taken in from other transporters?

A: Occasionally from other haulers (e.g. Pine Tree waste today). But not often. This is partly because of a lack of others interested in hauling organic wastes. There was, for a while in the past, a partnership with the federal prison with Berlin – they brought their own waste in their own trucks.

Q: What have been the biggest challenges of transporting organic wastes?

A: In the past, it was having the right trucks and trailers to deal with the wide variety of materials and how they store their waste and what their shipping docks are like.... They have

enough in their fleet now to deal with this. Currently, the driver market is challenging: not a lot of folks available to work and/or they have high demands. Maintaining a labor force has been challenging in the past year or two. Another challenge is truck maintenance and other costs – tough, margins are small. They are running two different trucking operations: long-haul vs. small collection trucks. EAE's current challenges: settling into having this huge new 2.2 million gallon tank. Cold weather is challenging. Depackaging is complicated.

Q: Have you considered making compressed natural gas?

A: Yes, this is being considered. Could help with fueling their trucks. Not sure if the numbers work out yet.

Q: How has the netmetering and interconnection been?

A: EAE produces power for all of Stonyvale Farm and EAE operations and then feeds some to the grid; net metering is working fine.

Q: Any concerns with the animal bedding material?

A: The farm was initially concerned about mastitis; but there has never been any issue.

Q: How do you protect from inadvertent chemical contamination? How have any issues been resolved?

A: Liquid materials are the biggest concern; Agri-Cycle requires testing of those materials. Food waste contamination is addressed through education of staff at collection sites. They focus drivers and others on watching for concerning contaminants. Could be chemicals, but could be large metal object. Palletized waste sometimes has green vinyl binding/strapping that can wreck the depackaging machine.
