**Northeast Digestion Roundtable #11**

**ADvancements Around the Region**

**October 5, 2018**

**NOTES**

**Featured presenters:**

* **John Fischer,** Branch Chief, Commercial Waste Reduction and Waste Planning, MassDEP
* **Brian Paganini, VP, Managing Director, Quantum Biopower**

*The following notes correspond to the slides available at* [*https://www.nebiosolids.org/ne-digestion-roundtable*](https://www.nebiosolids.org/ne-digestion-roundtable) *(see NEDR #11).*

**What’s New in Massachusetts? - John Fischer**

* Operational Capacity (slide 3): not all of these facilities are currently operating at their listed permitted capacity. Most are farm-based. But the digesters at Crapo Hill and Stop & Shop are not farm-based… Stop & Shop can now take in liquid material – that’s new. John noted that Greater Lawrence Sanitary District (GLSD) is permitted to take in up to 140,000 tons of food waste.
* Additional Capacity (slide 4)
	+ The operations permitted are at varying stages of construction.
	+ Capacity numbers are for tons/year of food material only (not other feedstocks)
* Anaerobic Digestion at Wastewater Treatment Facilities (slide 5): only GLSD is taking in food waste.
* Project in the Pipeline (slide 6): MassDEP continues to hear from some more developers
	+ CRMC (Commonwealth RMC) is operating at a pilot scale at Crapo Hill Landfill
	+ Yarmouth – Genesis – see news article August 21, 2018: <http://www.capecodtimes.com/opinion/20180821/trash-talk>
* Organics Management Capacity (slide 7):
	+ MassDEP’s original stated goal was to increase capacity for diverting and processing another 350,000 tons/year by 2020. That has already been reached.
	+ So, DEP’s focus has shifted. It is now reaching out to larger generators of organic waste about which DEP does not know what they are going with the waste. The landfill organic waste diversion requirement applies to any generator of 1 ton or more per week. DEP is ramping up compliance education and enforcement, so as to drive more material to fill the existing AD capacity.
	+ DEP also sees the need to pay attention to and support infrastructure that is key to the success of the AD facilities and food waste diversion, especially depackaging systems and capacity; known operations are listed on this slide.

Discussion:

Is GLSD the only WRRF taking in food waste? *John*: Yes… MA Clean Energy Center is working on whether other WRRFs might do so.

* *John:* For the food waste ban, in MA, additional capacity is not really needed now; “the capacity is there…. The growth needs to be in getting the food waste to the facilities…. However, there may be some need for sub-regional capacity, to reduce hauling distances….” The small size of our states mean that capacity can be out of state, and some food waste & other organics comes into MA from out of state. “Capacity can be mutually supporting in multiple states…”
* *John:* It’s important to note this talk is mostly about food waste; there may be more need for processing capacity in the wastewater and/or agricultural waste area.

Do you imagine that the standard will be standalone depackaging facilities or will depackaging be at AD facilities?

* *John*: Food waste seems to be going to intermediate, stand-alone processing facilities more now, although Stop & Shop and Agri-Energy have their own depackaging systems. Also, a third way is grind-to-energy at the generator site, which is then hauled to a digester. Not clear which model will win out, or there may remain these multiple solutions over the long term.

Any changes in incentives?

* *John*: as of now, we see plenty of capacity for food material…. May not need any more food digestion capacity…. However, if pre-processors can get at collecting food waste from small businesses and residences, then that would be a large volume and would need more capacity.
* DEP is concerned that too many facilities in the marketplace will mean competing for limited food waste. “We have backed off on some grant programs because of this concern… For example, Mass CEC has added a provision that they are not looking to fund projects dependent on food material only…. We want to make sure we can adequately support current development.” We are continuing to support existing facilities… from DEP’s standpoint, we want to focus on driving material to those facilities… For companies that have made the investments, we want to make sure they are getting what they need… So we are driving compliance with the disposal ban – that’s our primary emphasis. As we get that done, the next step is getting material from smaller sources… Then, if there is more need for capacity for that material, we’ll ramp up that effort again.

**What’s New in CT? – Brian Paganini**

* CT is lacking in AD development in comparison to MA.
* Quantum Biopower (slides 9 – 11)
	+ The Quantum Biopower AD facility in Southington, CT, which started operations last year, is constructed to take all comers, manage all sorts of organics. It is not permitted for wastewater solids, as CT does not support that form of co-digestion. Trucks dump into pits (rather than a dump floor); slurry is created, like a vanilla milkshake material, pump-able.
	+ Gas is cleaned, with CH4 to 57% of the total gas.
	+ Nutrient removal is done on the liquid digestate – biological process – then hauled to WWTFs. 60% recycled of it is recycled on site first. Working with CT DEEP to change definition related to the digestate to recognize this as recycling vs the current definition of the digestate as an industrial discharge.
	+ The Quantum Biopower facility in Southington generates 1 MW….
	+ Quantum was active in legislation on net metering, so that now the plant meters electricity to town agencies shown (slide 11). Power purchase agreement is in place for 20 years, shaves 20% off the Town’s electric bill. A good win-win situation.

What’s in store for CT ? (slide 12)

* In addition to what is self-explanatory on slide 12, Brian notes:
	+ Current regulatory & policy environment in CT includes election in November. DEEP has been open to having co-digestion discussion. They have been looking at developing a co-digestion standard. But, DEEP is very short on money; staff have or are leaving with their wastewater expertise. Unfortunate.
	+ Capacity is decreasing statewide for all “waste” materials - prices are going up. Places to put stuff is diminishing. China is putting on the pressure too. Recycling market is going haywire. In CT, the whole MSW stream is being impacted negatively right now. *Brian: “*It is nice to hear MA has made such great progress on AD…”
* Quantum has launched a new report with a partner…. The report shows that 10% of CT’s natural gas supply could come from renewable natural gas / biogas from food waste, biosolids, and manures…. In part to help make this kind of effort advance, Quantum has helped work on renewable energy credits / portfolio in CT laws and regulations.
* What will be the impact of CT’s Food Waste Diversion Mandate? The state is moving toward the 2020 requirement of diverting from landfill food waste from any place it is generated at the rate of 1 ton or more per week. Quantum gets about 20% of food from the 20-mile radius around its facility. The increased diversion mandate won’t likely change that much for that facility, but it will increase the total mass of food waste diverted across the state.
* Quantum is also working on some ag-based AD projects in other parts of CT. Likely will not take in food waste; likely just for manure/ag waste. Bringing in manure to Southington does not make sense. *Brian:* “We have done lots of work on nutrient recovery at back end of digesters. So we can offer farms ways to improve their nutrient management…. It’s better value to have manure-only digestate rather than with food scraps included.”

**Vermont Update – Alex DePillis**

* Right now, at this hour, Friday mid-day, awards are being given in VT – 5 winners are getting $50,000 each for P extraction projects. (Essex Junction is involved in one of these awarded projects.) Phosphorus remains a driving issue in VT.
* The Montpelier WTTF is working with Energy Services Group on some digester reconfiguration, to save some money…. Asking for a bond…. Details are uncertain. Something to learn more about.
* VT currently has 15 - 16 farm digesters operating… a few such digesters dropped out in the past few years, as the industry is maturing, and some companies just didn’t make it. The farm digesters range in size from 150 KW to 680 KW of power generation.
* Recently, the state offered a competitive grant program funded at $975K - food processing grants – could be use for depackaging for AD or composting processing.
* Right now, the need is for more stand-alone digesters for processing food waste from beverage companies and creameries…. that’s where the pinch is. WRRFs don’t have capacity to take all this waste. 2 such stand-alone digesters are in permitting now, and 2 in conceptual stage.
* Some grind-to-energy – one very large college cafeteria is doing grind-to-energy and the slurry is getting picked up and sent to AD.
* Alex mentioned the feed-in tariff, which is locked in at 20.8 cents for 20 years for food waste digesters feeding electricity into the grid (levelized cost). To qualify, more than ½ of the feedstock taken in by the digester must be food waste.
* And, the latest and greatest is talk among farm digesters and Alex and other regulators about the potential of renewable natural gas (RNG) made from biogas. It has 3 times the monetary return vs. traditional biogas use. Alex is holding a strategy session to look into this on Oct. 19th.