The Statistics

- Over 96% of U.S. food waste goes to a landfill or an incinerator
- ~33 million tons landfilled annually in U.S.
- ~1.77 million tons of MSW generated in ME in 2011
- Food residuals constitute ~28% of MSW in Maine*

**DEP License Required?**

- Facilities digesting only manure and agricultural wastes → No
- Facilities (including farms) digesting manure and residuals/solid waste from off-site → Yes
- WWTPs digesting own sludge → No
- Facilities digesting Type II (or Type III) from off-site → Yes

**Application Process**

- Pre-application meeting with Department staff
- List of possible feedstocks
- Analytical data for Type II and Type III residuals
- Final disposition of digestate
  - Could require waste discharge license for liquid
  - Could require agronomic utilization license for solids
Design and Operating Standards

- Design capacity – accommodate throughput
- Sampling and Analytical Work Plan for feedstocks and digestate
- Run-off, storm water and leachate control for 25-year, 24-hour storm
- Odor control
- Class A Pathogen and Vector Attraction Reduction may be required
- If digester is below grade, leak detection required

Regulating Anaerobic Digesters

- Annual (at least) DEP inspection
- Annual reports
- Analytical requirements – feedstock dependent
  - Heavy metals
  - Salmonella or fecal coliform
  - Semi-Volatile Organic Compounds (SVOCs)
  - Volatile Organic Compounds (VOCs)
Exeter AgriEnergy

- Colocated with Stonyvale Farm in Exeter, Maine
  - 1,000 milking cows
  - 150 dry cows
  - 800 young stock
- Licensed in July 2011, went online December 2011
  - $2.9 million project
  - Two 396,000-gallon digesters
  - Mesophilic temperatures, 25-30 day retention time
  - One 1-MW biogas engine

Exeter AgriEnergy (cont)

- Family business – Adam, John & Sarah Wintle
- Current feedstocks
  - On-farm manure (7 million gallons in 2013)
  - Food scraps from Hannaford, WalMart, Whole Foods
  - Some food scraps from Portland-area restaurants
  - Fats, oils, grease (FOG)
  - Glycerine
  - Total of 9,590 tons in 2013
Exeter AgriEnergy (cont)

• Output in 2013
  – 7,100 MW-hrs sold to Bangor Hydro
  – 10,000 yd$^3$ of dewatered digestate used as dairy bedding at Stonyvale Farm
  – 8 million gallons of liquid digestate spread per CAFO Nutrient Management Plan at Stonyvale Farm

• Expansion licensed in January 2014
  – Two additional 396,000-gallon digesters
  – Two additional 1-MW biogas engines
On the Horizon

• Lewiston-Auburn Water Pollution Control Authority
  – $12 million upgrade to WWTP
  – Two digesters with total capacity of 1.38 million gallons
  – Two 230-KW engines
  – Went online in 2013
  – May add food scraps in the future
On the Horizon (cont)

• Village Green – Brunswick, Maine
  – 850,000-gal AD accepting WWTP sludge, septage, FOG, food residuals
  – One 1-MW biogas engine
  – License should be issued in the next month or so

• Clinton AgriEnergy – Clinton, Maine
  – Colocated with Flood Brothers Farm in Clinton, Maine
  – Manure from 1,600 milking cows (3,900 total), FOG, food scraps
  – 5.86 MW output
  – Target date 2015-2016