Vanguard
RENEWABLES

Mass DEP
Update on Anaerobic Digestion

FARM POWERED

AGENDA

- Vanguard Renewables & Anaerobic Digestion
- Our Farm Locations
- Stakeholder Benefits

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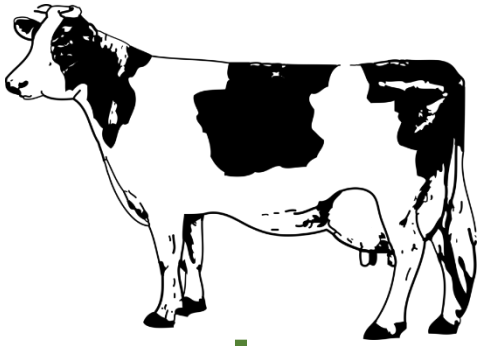
The Vanguard Story

[redacted]

[redacted]

How Anaerobic Digestion Works

INPUTS



Cow Manure

Food Waste

FARM-BASED DIGESTION

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OUTPUTS

Gas or Electricity

Heat

Fertilizer

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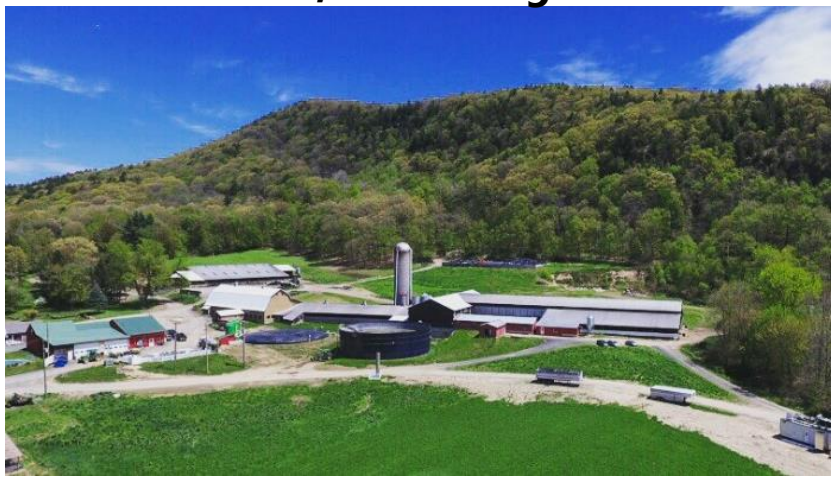
Vanguard Massachusetts Farm Digesters

RUTLAND, MA – Jordan Farm

Post Upgrades

- 800kW
- Processes approx.
  - 75 TPD both solid & liquid organics
  - 25 TPD of manure
- 3 receiving tanks for recipe management & dosing
- Improved SCADA system controls and metering
- Heat loop to home and houses in development

HADLEY, MA – Longview Farm



Post Upgrades

- 800kW
- Processes approx.
  - 75 TPD both solid & liquid organics
  - 25 TPD of manure
- 4 receiving tanks for recipe management & dosing
- Improved SCADA system controls and metering
- Includes heat loop to home and barns

DEERFIELD, MA – Bar-Way Farm

Completed 2016

- 1MW
- Processes approx.
  - 100 TPD both solid & liquid organics
  - 25 TPD of manure
- 1 receiving tank (hydrolyzer)
- Solid separation equipment for bedding
- Improved SCADA system controls and metering
- Heat loop in development for greenhouse operation

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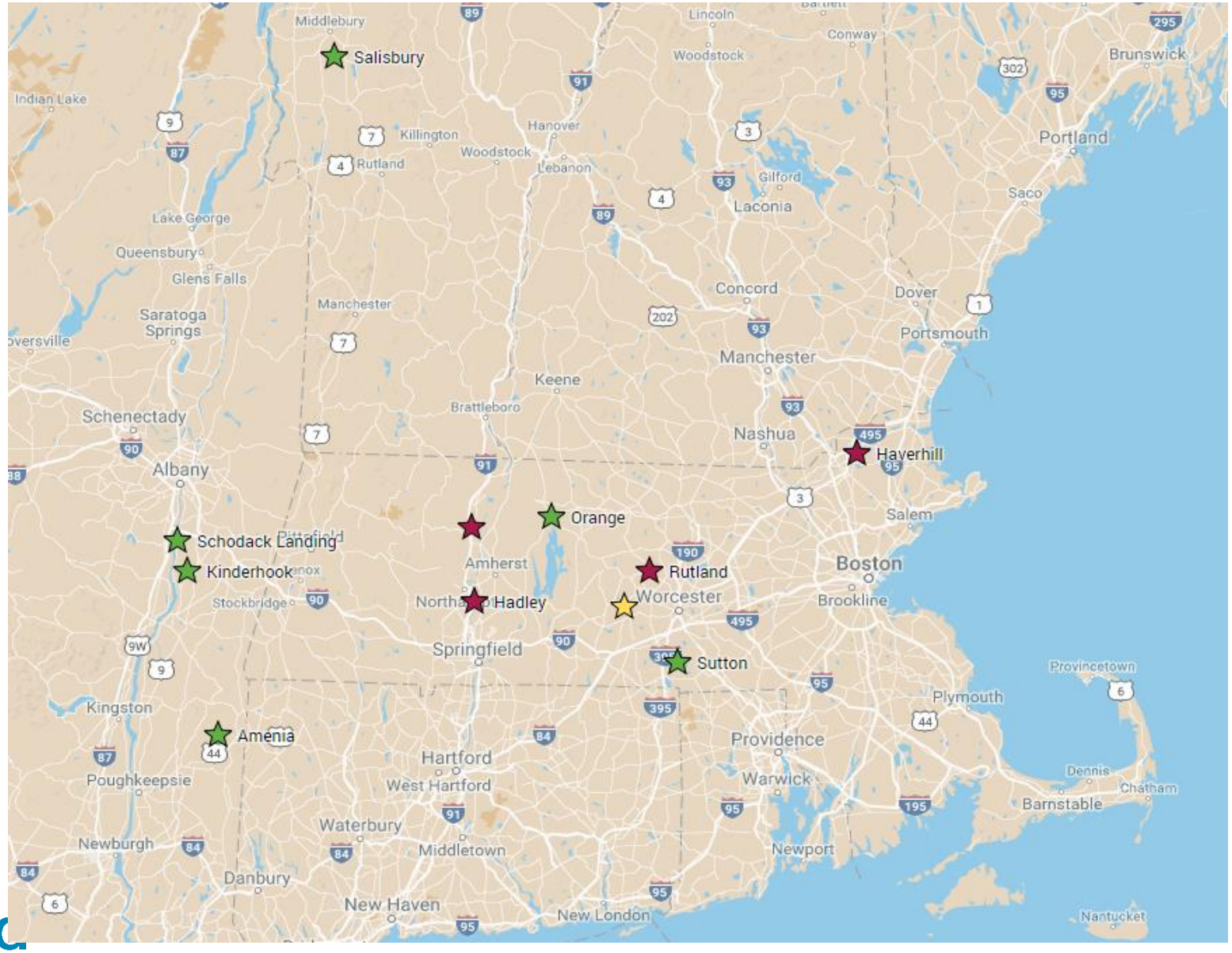
Northeast Site Map



- Operating
- In Development
- Under construction

RNG Offtake – Transportation Fuel Markets

Location	Capacity (TPD)	Opening Date
Haverhill	120 tons	October, 2018
Rutland	75 tons	2012
Hadley	75 tons	2013
Deerfield	120 tons	2017
Spencer	120 tons	March, 2019
Totals	**510 tons per day**	

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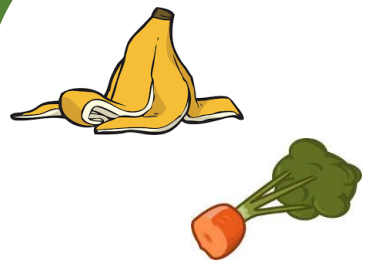
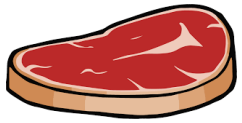
Yes!

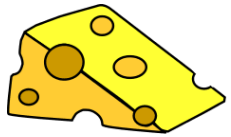
Could it go down a garbage disposal?



Fruits & vegetables



Meat



Dairy

Oil (from food)

Green Energy: From Table to Farm

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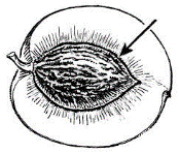
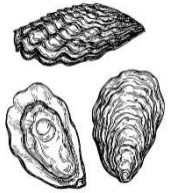
Less than 1%

Bones



Pits

Eggshells

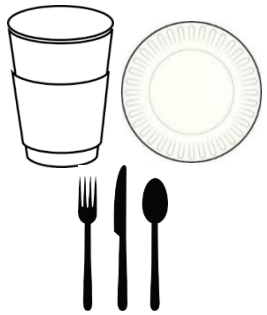


Seafood shells

Not acceptable

Cardboard/paper /napkins

Cups/plates /utensils



Plastic/rubber

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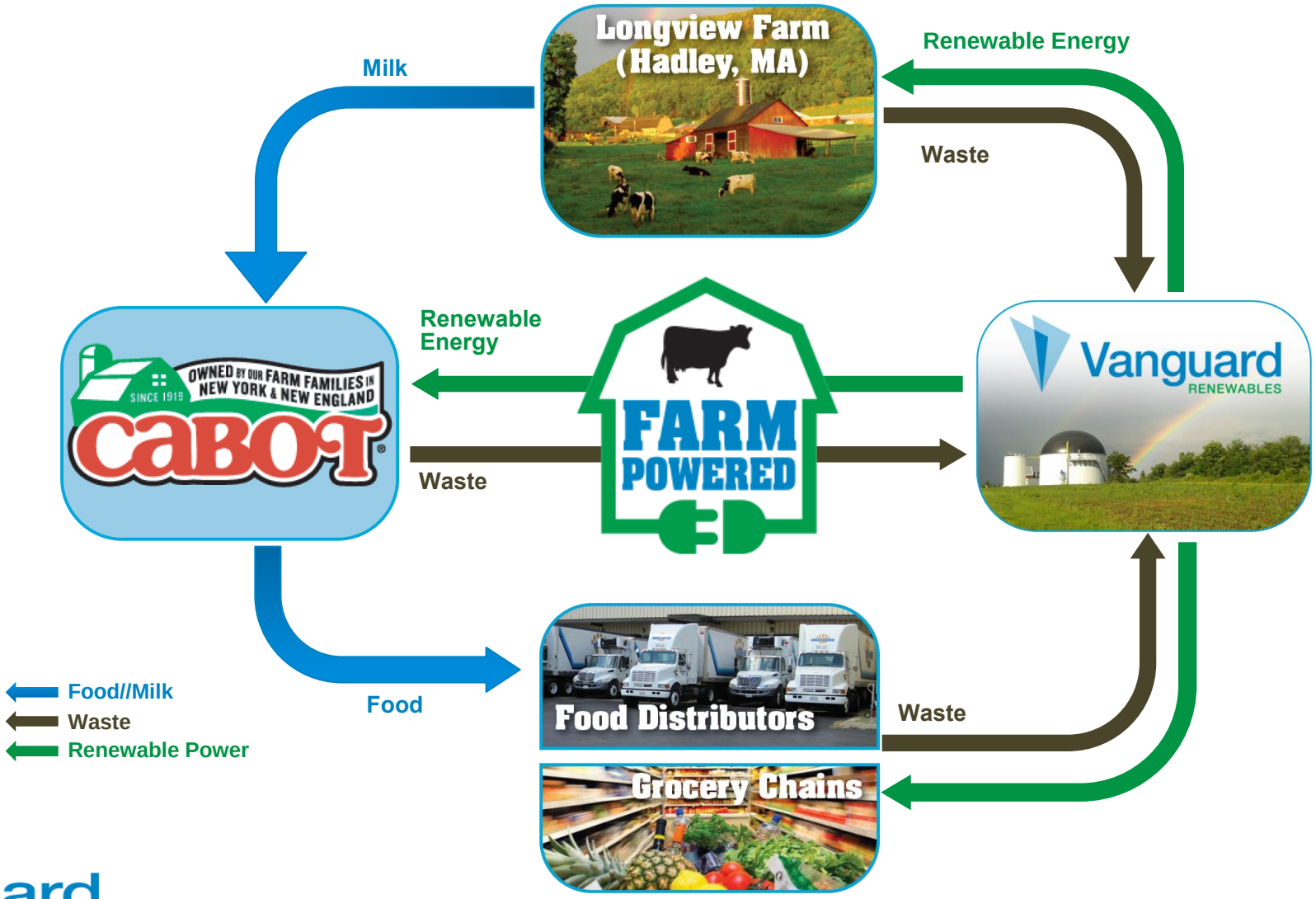
Organics to Energy
“Closed Loop” Lifecycle



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Multiple Community Benefits

Sustainability

- Food Waste Diversion Programs increase landfill life and reduce Methane greenhouse emissions
- Remove the farmers dependence on synthetic fertilizers
- Colocation and heating loops improve local energy consumption

Farm Benefits

- Farm's are tied back to the contributors of food waste
- Odor is reduced by 85% or more
- New bedding source is free and better for animal comfort

Community

- Farms are sustained, new Greenhouses and other agricultural uses encouraged
- Increased number of jobs by spurring new industry
- Independent power supply enhances grid stability

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