

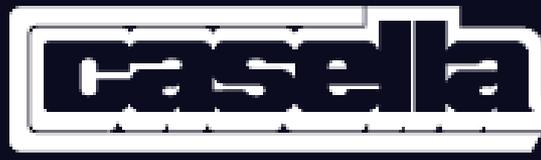
FOOD WASTE MANAGEMENT INFRASTRUCTURE IN VERMONT

NNE SWANA Technical Session
October 25, 2016





About Us



**Started in 1975 by
John and Doug
Casella with a
single truck**





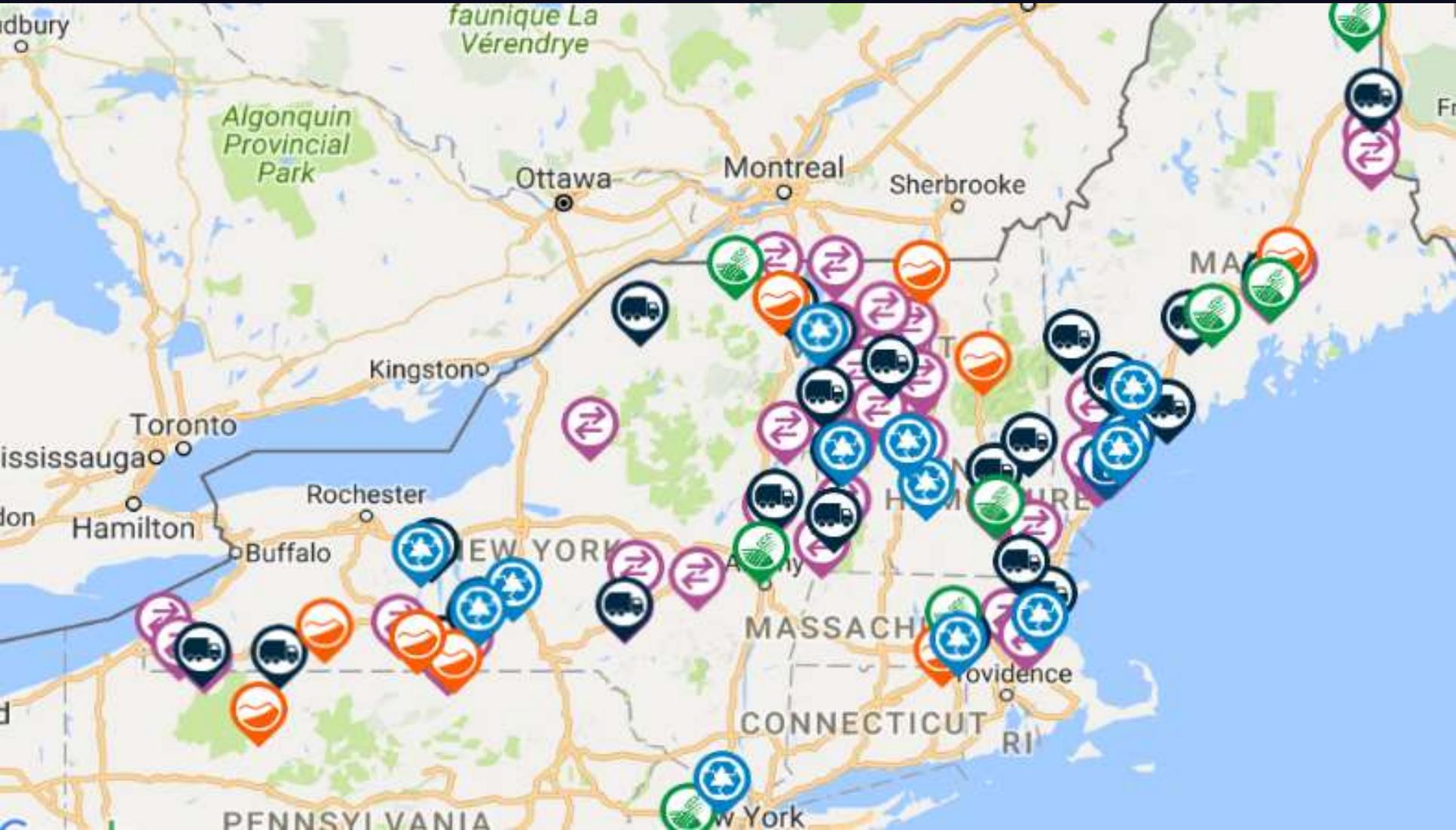
Giving Resources New Life[®]



- Publicly traded company
 - Headquartered in Rutland, VT
 - 1,800 employees
 - 200,000 customers
 - Serving 39 States
 - Approx. \$500M/yr revenue
 - Recovering approx. 900,000 tons/year of recyclables and organic materials
 - LFGTE powering equiv. of 15,000 homes
- Casella Organics
 - Founded in ME in 1983 as Resource Conservation Services. Acquired by Casella in 2000
 - Biosolids, food waste, ash, SPF
 - 400,000 tons beneficially reused in 2015
 - Facilities
 - Hawk Ridge - Compost
 - Grasslands - Alk. Stab.
 - Rutland MA - On-Farm AD
 - Hadley MA - On-Farm AD



About Us



What about Food Waste Management Infrastructure in Vermont?





Act 148 Infrastructure Related Studies Completed

- Systems Analysis of the Impact of Act 148 on Solid Waste Management in Vermont (DSM/Tellus/RLS - October 2013)
- Report to the Vermont Legislature: Act 148 Implementation (VT ANR - Nov 2013)
- Report to the Legislature: Solid Waste Infrastructure Advisory Committee (February 2015)
- Analysis of the Potential to Raise Revenue By Imposing a Solid Waste Service Fee (DSM – June 2015)

<http://dec.vermont.gov/waste-management/solid/publications-and-reports>



Organics Summary

- Vermont's composters, on-farm digesters, farm animal feed operations and food rescue operations have the potential capacity to meet the projected organics demand
- Facility expansions, upgrades and/or pre-processing infrastructure are likely needed
- Processing capacity gaps exist in Rutland and Upper Valley/Springfield areas although areas may be served by existing facilities to their south.
- 16 food scrap haulers: 12 commercial scale & 4 smaller
- Brattleboro has the only robust residential curbside collection



Infrastructure Related Recommendations

- Source carbon feedstocks for composters through state purchasing policies and contracts
- Increase preprocessing capacity for food scraps to be acceptable at farm digesters
- Ramp-up education outreach compliance and enforcement of the organics ban to boost markets for organics haulers and facility operators
- Foster curbside residential organics collection pilot projects
- Administer grants or loans to increase capacity at existing organics processing facilities before investing in new facilities



Organics Infrastructure Cost Summary (2014 - 2020)

New trucks	\$261,340
Containers	\$6,534,302
Drop off transfer station capacity	\$968,456
Organics processing facilities	<u>\$21,900,000*</u>
	\$29,664,098

* Assumes: 30% on-farm composting, 1 centralized composting facility/county, cost of AD w/ pre-processing comparable to composting. \$7,900,000 by end of 2016.





Funding Sources

- Implement VT Solid Waste Service Fee
 - \$5.4M/yr from collection and drop-off services of trash recyclables and organics. To replace current \$3.4M/yr (\$6/ton) Solid Waste Franchise Fee. Take effect July 1, 2016 or before
- Implement disposable bags tax of \$0.05/bag
- Provide \$2M/yr in funding for implementation (including recycling)
 - 25% grants 75% match
 - private and public entities to be eligible
- Analysis of the Potential to Raise Revenue by Imposing a Service Fee on All Solid Waste Transactions report completed June 23, 2015

What about Food Waste Management Infrastructure in Vermont?

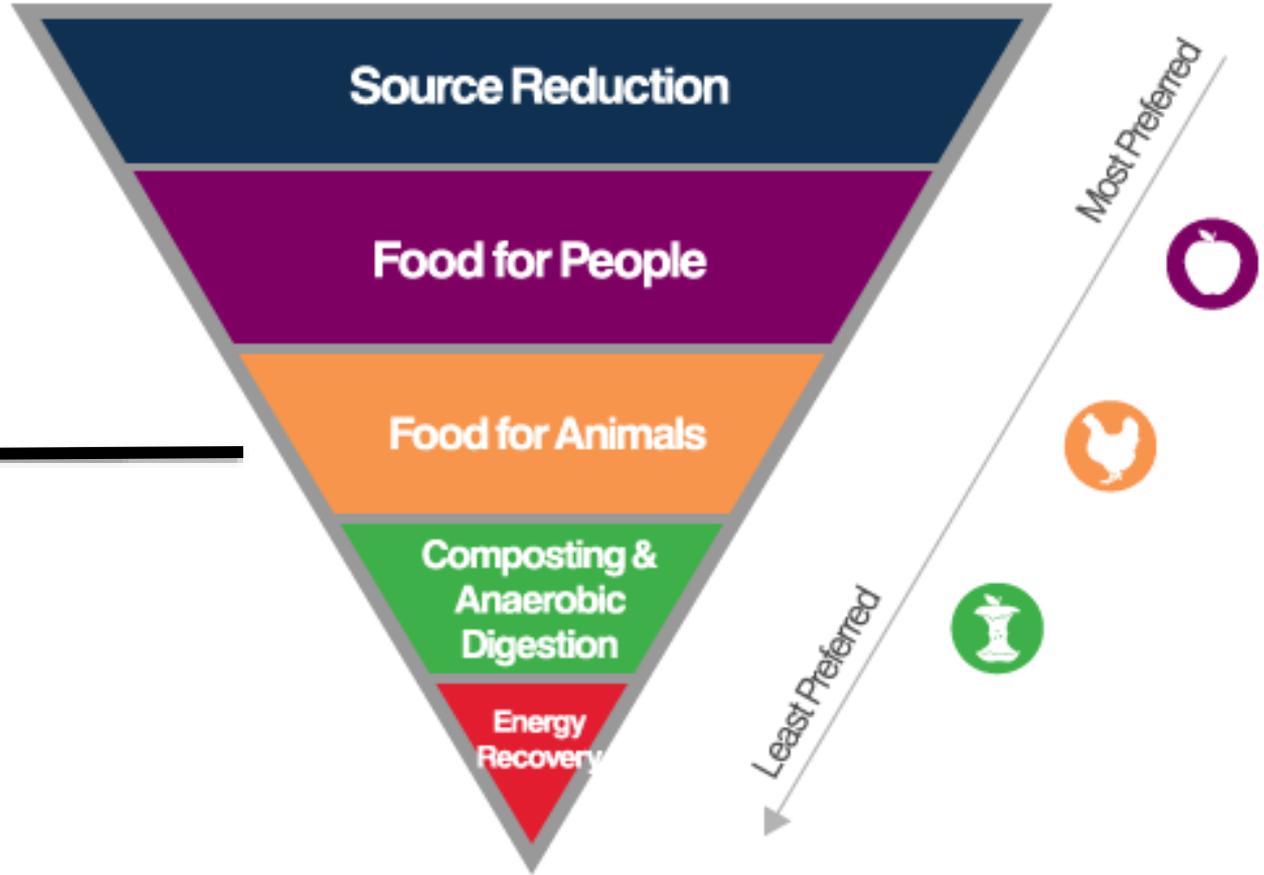




Food Waste Infrastructure



Vermont Food Recovery Hierarchy



Food Waste Infrastructure





Food Waste Infrastructure 2016



VERMONT FOOD SCRAP HAULER DIRECTORY

June 2016

1. Casella Resource Solutions
2. TAM Waste Management
3. Triple T Trucking
4. Gauthier Trucking
5. Myers Container Service
6. Goodenough Rubbish
7. Grow Compost
8. Northwest Vermont SWMD
9. Central Vermont SWMD
10. Cloud's Path Farm
11. Cookeville Compost
12. Black Dirt Farm
13. Earthgirl Composting





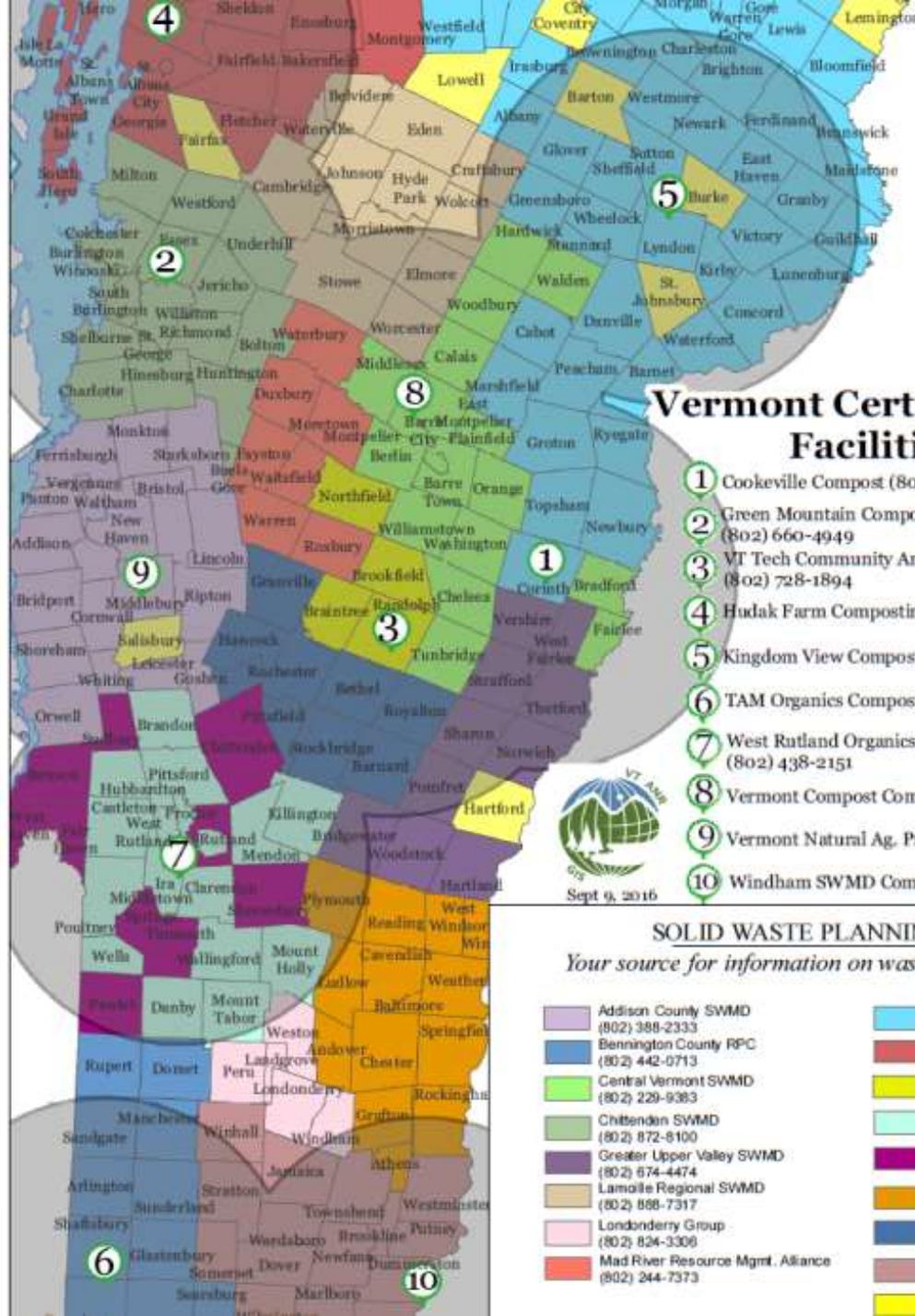
Existing VT Certified Organics Facilities



Composting Facilities Permitting Tiers

1. Small Composting Facility Registration: up to 2,000 cy/yr.
2. Medium Composting Facility Categorical Certification: Up to 5,000 cy/yr
3. Large Composting Facility Full Certification: Over 5,000 cy/yr
4. Animal Feed (No Certification Required)





Vermont Certified Organics Facilities Map

- 1 Cookeville Compost (802) 439-5563
- 2 Green Mountain Compost (CSWD Composting Facility) (802) 660-4949
- 3 VT Tech Community Anaerobic Digester (802) 728-1894
- 4 Hudak Farm Composting Facility (802) 527-1147
- 5 Kingdom View Compost (802) 626-3265
- 6 TAM Organics Compost Facility (802) 447-1300
- 7 West Rutland Organics and Recycling Facility (802) 438-2151
- 8 Vermont Compost Company (802) 223-6049
- 9 Vermont Natural Ag. Products (802) 388-1137
- 10 Windham SWMD Compost Facility (802) 257-0272



SOLID WASTE PLANNING ENTITIES

Your source for information on waste services in your area

Addison County SWMD (802) 388-2333	Northeast Kingdom VMD (802) 626-3532
Bennington County RPC (802) 442-0713	Northwest Vermont SWMD (802) 524-5986
Central Vermont SWMD (802) 229-9363	Mountain Alliance (802) 728-5433
Chittenden SWMD (802) 872-8100	Rutland County SWD (802) 775-7209
Greater Upper Valley SWMD (802) 574-4474	Solid Waste Alliance Communities (511) 854-9702
Lamoille Regional SWMD (802) 898-7317	So. Windsor/Windham Cnty SWMD (802) 674-9235
Londonderry Group (802) 834-3306	White River Alliance (802) 234-9340
Mad River Resource Mgmt. Alliance (802) 244-7373	Windham SWMD (802) 257-0272
	Individual Towns with Approved Plans call Town Office



Vermont Certified Organics Facilities	2015 Tons F.S.
1. Green Mountain Compost (CSWD)	4,028
2. Windham SWMD Compost Facility	685
3. TAM Organics Compost Facility	615
4. Kingdom View Compost	416
5. Hudak Farm Composting Facility	300
6. Vermont Natural Ag. Products	142
7. Vermont Compost Co. (Fairmont Farms)	0
8. Cookeville Compost	Not Reported
• GROW Compost	Not Reported
9. Vermont Tech AD	Data Not Available
10. West Rutland Organics Recovery Facility	0



Food Waste Infrastructure 2016-



Green Mountain Compost (CSWD)

Williston

- Permitted Capacity: 5,172 tpy
- 2015 Throughput: 4,028 tpy
- Capacity of existing infrastructure: 6,500 tpy

Actively exploring options for future growth





Windham SWMD Compost

Brattleboro

- Permitted Capacity: 1,000 tpy
- 2015 Throughput: 685 tpy

Brattleboro residential. Planning to increase to medium tier next year, subject to funding. Also evaluating AD.





TAM Compost Facility

Bennington

- Permitted Capacity: 2,500 tpy
- 2015 Throughput: 615 tpy

Has plenty of additional capacity and plans to grow as the market allows.





Kingdom View Compost

Paris Family

Tamarlane Farm

Lyndonville

- Permitted Capacity: 1,000 tpy
- 2015 Throughput: 416 tpy

Hauling done by Black Dirt Farm

Anticipates reaching capacity in 2017.

No plans to expand.

Looking at ASP.





Hudack Farm Composting Facility

St. Albans

- Permitted Capacity: 1,000 tpy
- 2015 Throughput: 300 tpy

Plans to grow beyond small compost tier as demand increases.





Food Waste Infrastructure 2016-



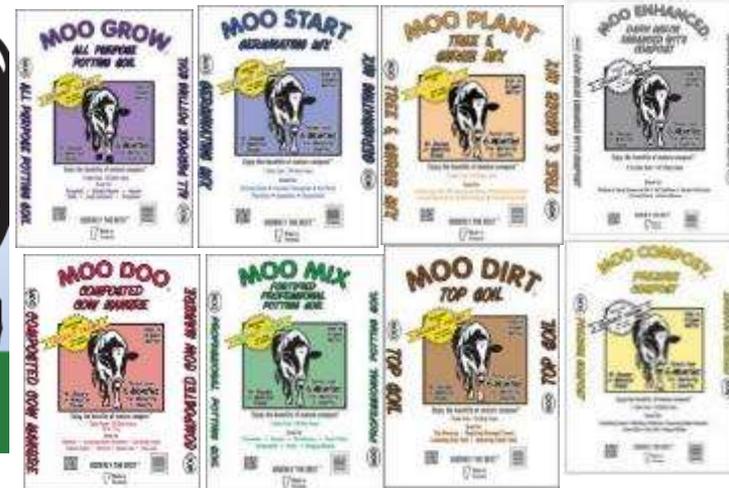
Vermont Natural Ag Products

Middlebury

- Permitted Capacity: 2,500 tpy
- 2015 Throughput: 142 tpy



We Doo



Udderly the Best!™ Organic Compost. Made in Vermont.



Vermont Compost Company

Montpelier - Chicken Ranch

East Montpelier – Fairmont Farms Compost

- Permitted Capacity: N/A
- 2015 Throughput: Unknown





Food Waste Infrastructure 2016-



Cookeville Compost

Sandberg Farm

East Corinth

- Permitted Capacity: 1,000 tpy
- 2015 Throughput: 500 tpy

Has potential additional capacity but not likely to go beyond small compost facility





GROW Compost

Moretown

- Permitted Capacity: N/A
- 2015 Throughput: Unknown

Currently growing and actively partnering with additional chicken farms
Clean material only





Food Waste Infrastructure 2016-



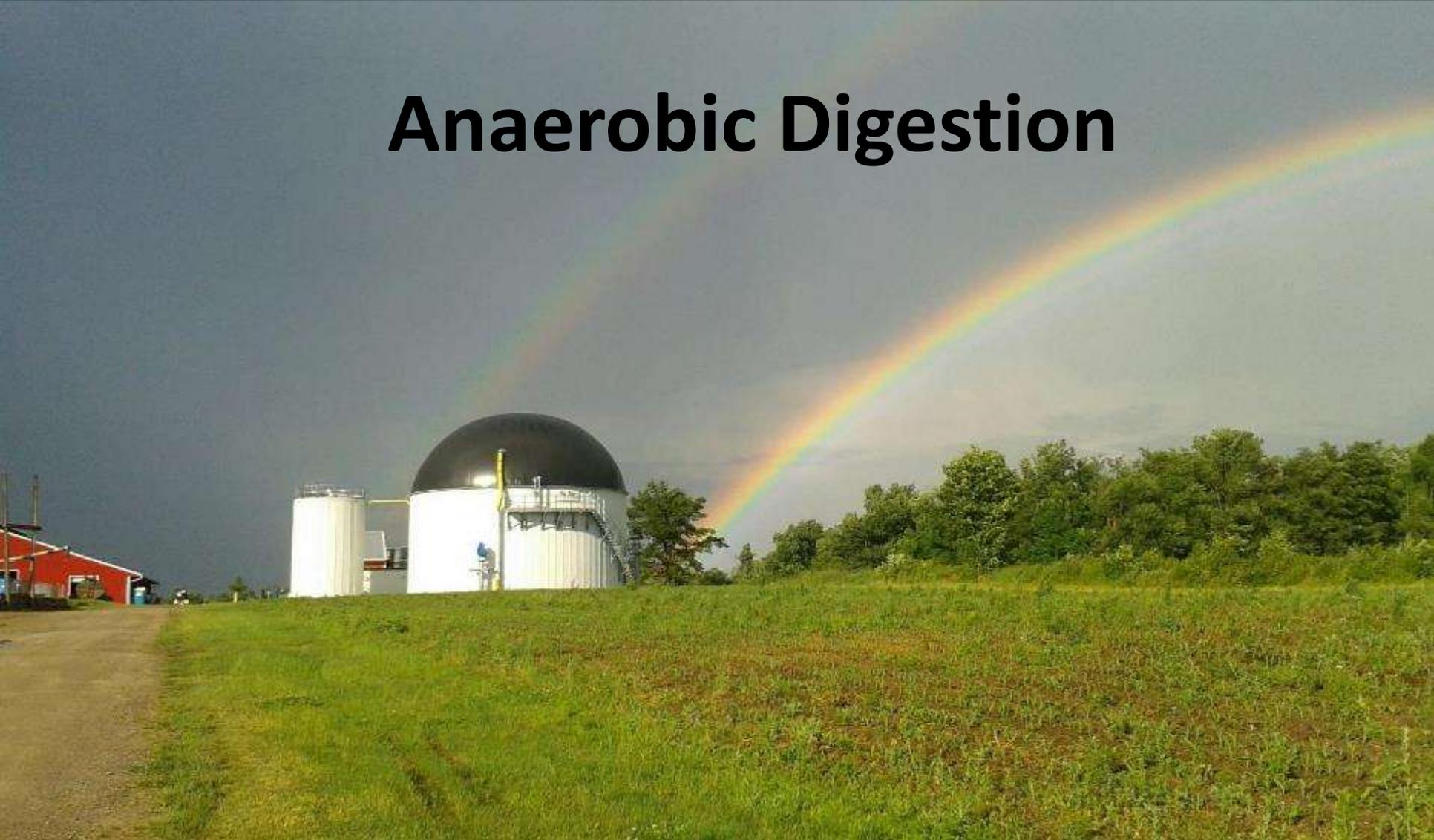
When is a waste not a waste?



**When it's a feed!
Composting is going to the birds**



Anaerobic Digestion





Food Waste Infrastructure 2016-



Vermont Technical College

Randolph

- Permitted Capacity: 12,000 tpy
- 2015 Throughput:

**VERMONT
TECH**





Food Waste Infrastructure 2017-



Casella Organics Recovery Facility (ORF)

West Rutland

- Permitted Capacity: 3,000 tpy
- 2015 Throughput: Still under construction
- Anticipated commissioning Spring 2017
- To produce a slurry feedstock for Blue Spruce Farm AD, Bridport





Beyond VT Certified Facilities

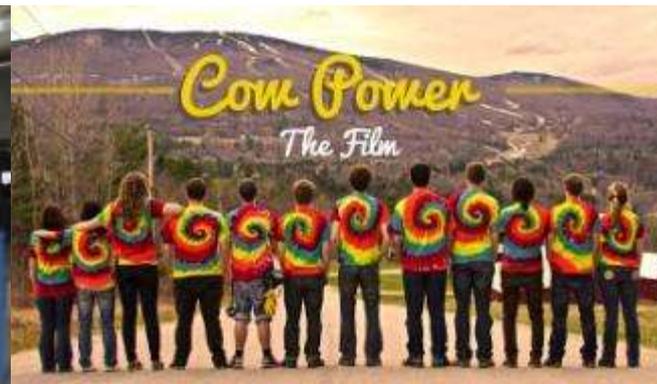
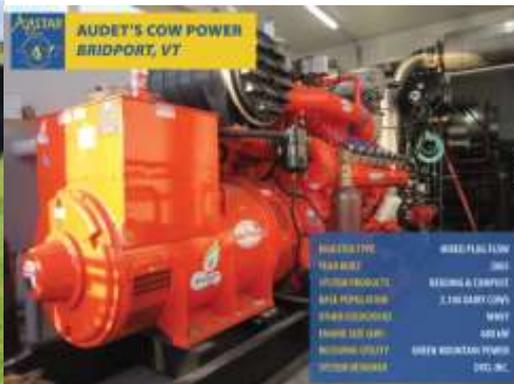


Cow Power On-Farm Anaerobic Digesters

- Benjamins Riverview Farm
- Berkshire Cow Power LLC
- Blue Spruce Farm
- Chaput Family Farms
- Dubois Farm
- Four Hills Farm
- Gervais Family Farm
- Green Mountain Dairy
- Kane's Cow Power LLC
- Maplehurst Farms
- Rail City Cow Power
- Monument Farms
- Maxwell's Energy LLC
- Westminster Farms

Several Other On-Farm Digesters

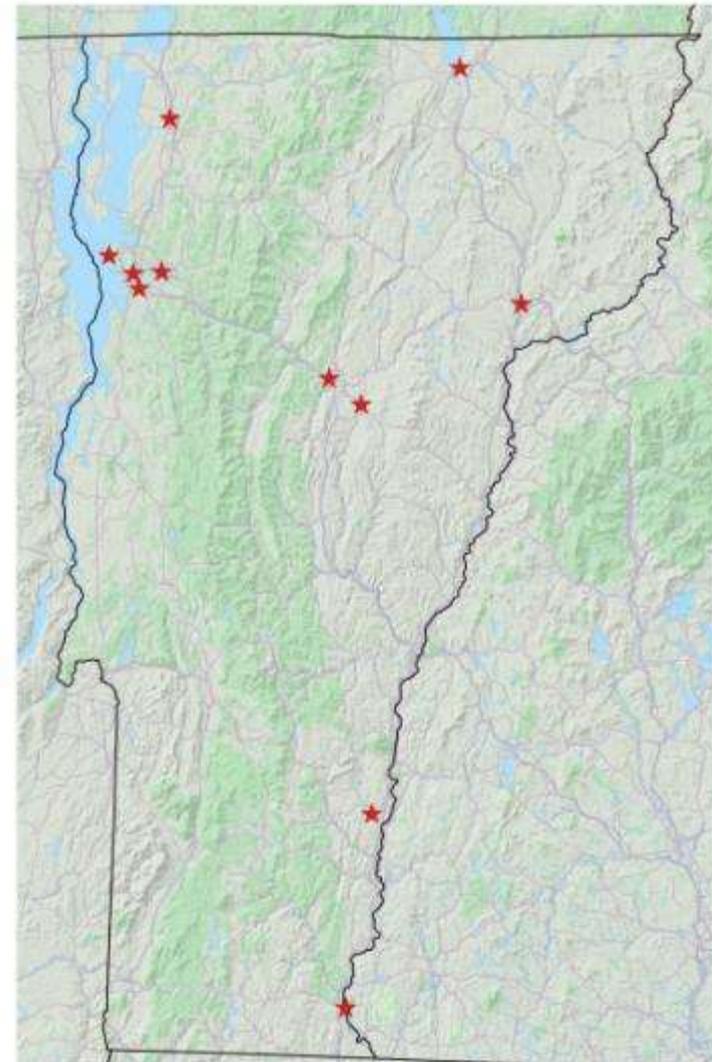
- Jonelan Farm, Pike Farm,





Existing Municipal WWTF Digesters

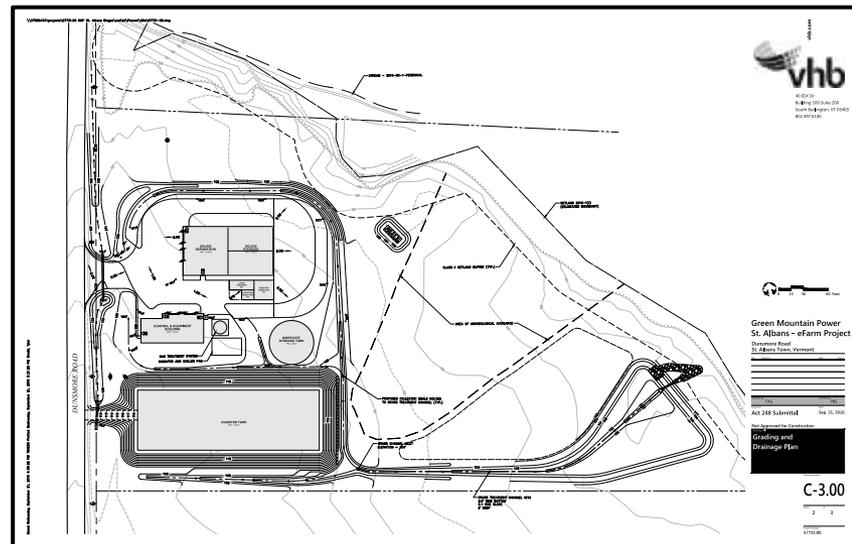
- Rutland City
- Montpelier
- South Burlington
- Burlington
- Brattleboro
- Springfield
- Barre
- Essex Junction
- St Johnsbury
- St. Albans
- Windsor
- Newport City



GMP Anaerobic Digester (Proposed)

St. Albans

- Approximate Capacity: 2,750 tpy
- Commissioning anticipated in Fall 2017
- Regional manure digester taking some food waste
- Project will include primary and secondary separation systems including (DAF).
- Systems can remove *up to 80%* (39 MT) of the phosphorus from the effluent returning only what the farm needs for crops.
- 800 kW CHP meeting new AQ regs





Food Waste Infrastructure 2017-



CAPACITY (Tons/Yr)	2015	Permitted	Future
Small Composters	1,401	4,000	4,000
Medium Composters	757	7,500	7,500
Large Composters	5,172	4,028	6,500
VCT AD	Unknown	12,000	12,000
ID TO On-Farm AD	23,000	NA	Significant
Chicken Ranchers	Unknown	NA	Unknown
Animal Feed	Unknown	NA	Unknown
Food Recovery	Unknown	NA	Unknown
Additional Cow Power AD	0	NA	Significant
Additional WWTF AD	0	NA	Significant
GMP St. Albans AD	0	NA	2,750

Is that it? Have you covered everything? Can I be Excused?





For Another Time.

Maybe Another Speaker:

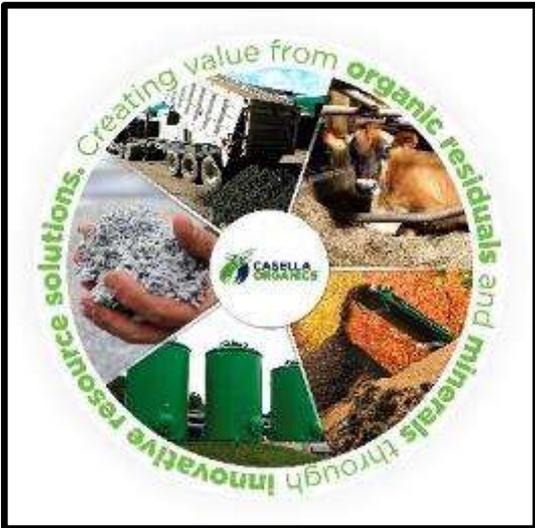
- Funding
- Contamination
- Depackaging & Decasing
- Animal Feed Regs
- Digester Regs
- FOG QA
- End Product QC
- Digestate Management
- Indirect Discharge Permits
- Nutrient Management Plans
- Compostable Ware





ENFORCEMENT





Thank you!

Questions?

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