

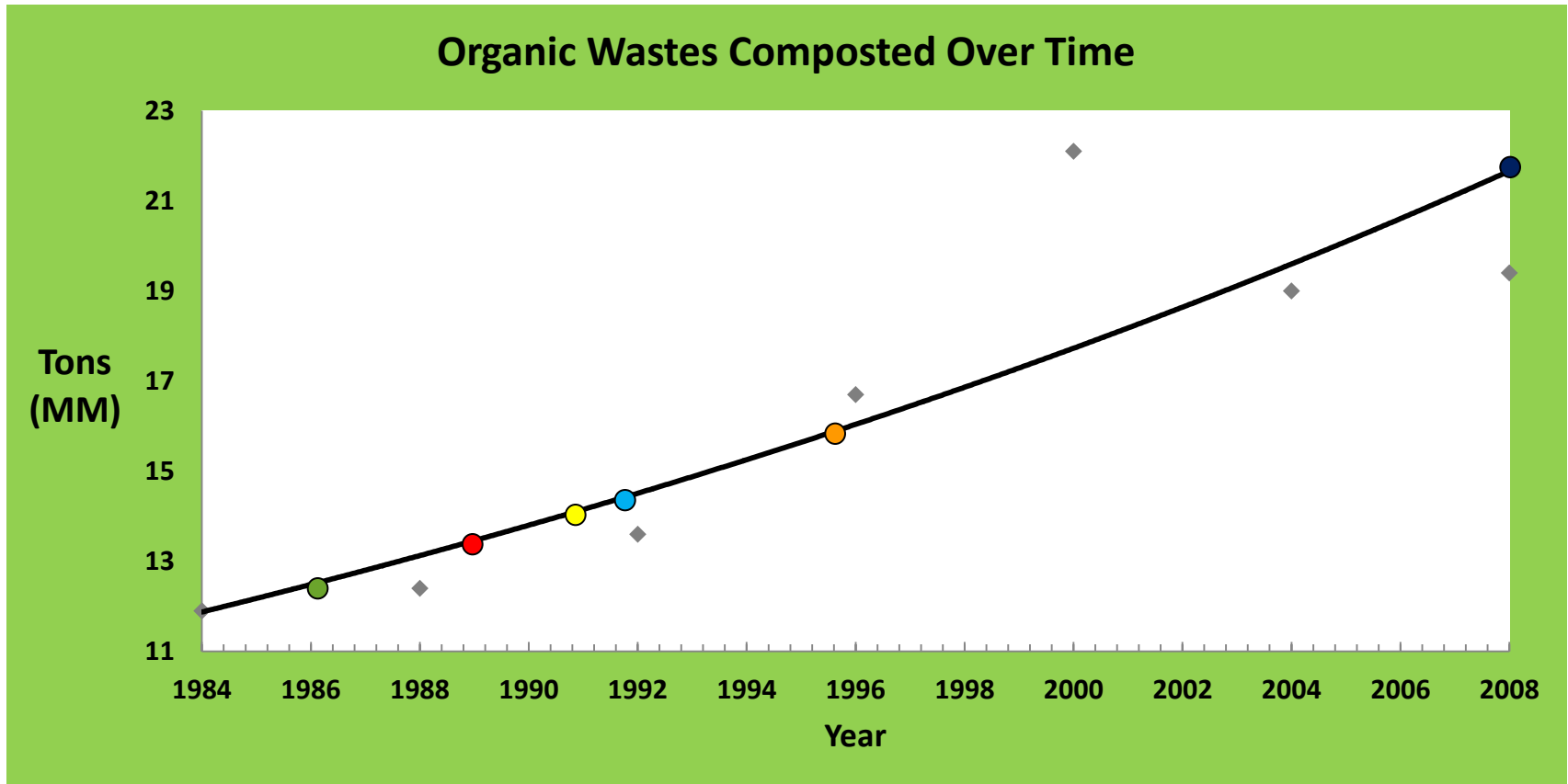
Anaerobic Digestion Opportunities and Challenges for Connecticut

Unlocking the Value: Transforming the Connecticut Materials Economy

Wayne Davis

March 22, 2012

Birth of an Industry – US Policy Works



● 1990: State yard waste landfill bans begin to take effect, USCC formed

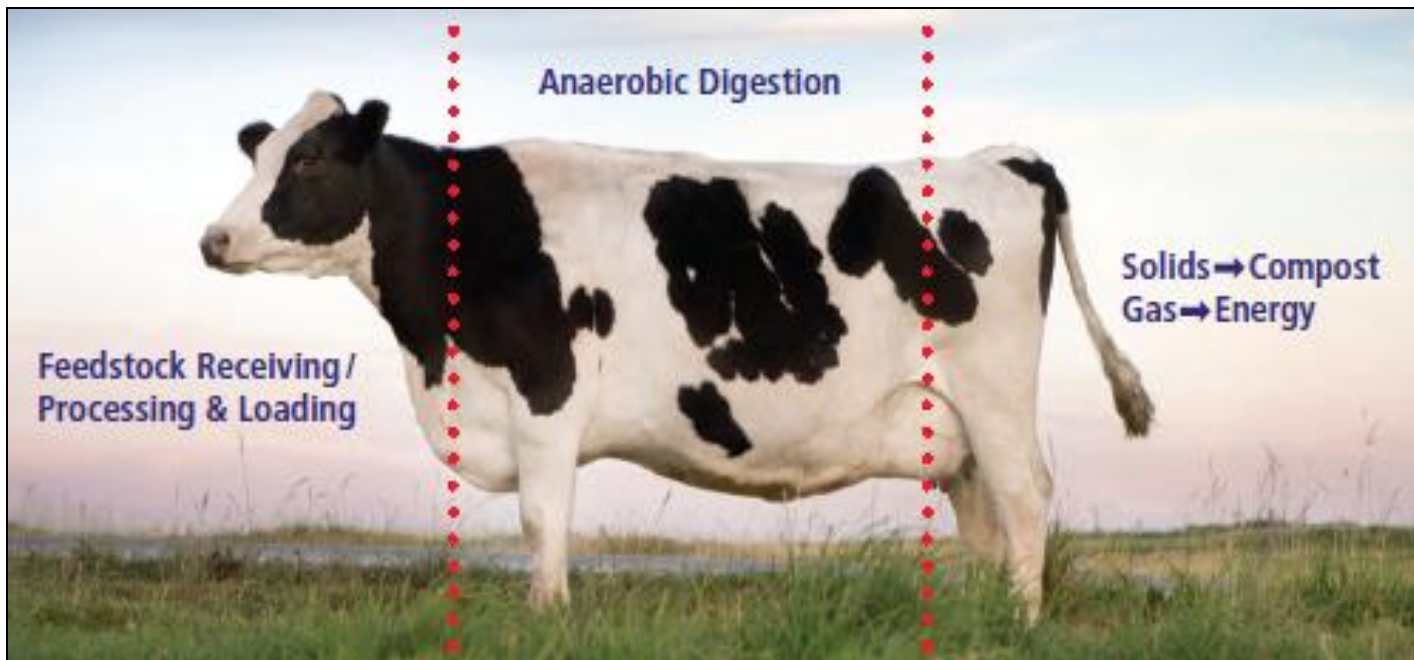
● 1991: Ocean dumping of biosolids completely prohibited

The Harvest Organics Operating System™



Our Technology

Anaerobic digestion mimics the processes that occur in a cow's stomach. We use similar micro-organisms in a large chamber, capture and utilize the biogas as it is produced. We optimize biogas production by creating an ideal environment for the microbes to do their work.



Organics Recycling Centers

Harvest **finances, designs, builds, owns, and operates** state-of-the-art organics recycling centers in North American communities



- Recycle residential, commercial, industrial, and institutional organics
 - Highly efficient technologies
 - Maximum odor control
- Produce clean, reliable, renewable energy
- Reduce greenhouse gas emissions
- Provide local energy independence
- Minimize footprint and allow for expansion
- Create nutrient-rich compost and fertilizer end products

AD Technology Choices

Technology choice is driven by the markets for feedstocks and end products.

	Batch High Solids	Continuous High Solids	Low Solids
Solids Content	25-50%	18-40%	5-15%

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Possible Feedstocks	<ul style="list-style-type: none"> • Food scraps (50-60%) • Yard trimmings (40-50%) 	<ul style="list-style-type: none"> • Food scraps • FOG • Dewatered biosolids • MRF residuals 	<ul style="list-style-type: none"> • Food scraps • FOG • Waste water sludges • Manure

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Possible End Products	Compost	<ul style="list-style-type: none"> • Liquid fertilizer* • Compost <i>or</i> dry fertilizer 	<ul style="list-style-type: none"> • Liquid fertilizer* • Compost <i>or</i> dry fertilizer

* No market for liquid fertilizer in Connecticut.

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Contamination Tolerance	High	Medium	Lower
Quantity of Liquid Effluent	De minimus	Medium	High

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Promoting AD – Policy & Economic Considerations

Factors Influencing Developers and Investors to Pursue Large-Scale AD Development in a Particular Jurisdiction

Policy Factors

Permitting Pathway

- **Predictability:** is it clear *how* to proceed and *what* information will be required?
- **Speed**
- **Cost and complication:** how many different agencies?

Organics Policies

- **Diversion:** encouraged or required (*note:* commercial & institutional more important than residential)
- **Operating Rules:** are standards re: contamination, odor-control, *etc.* up-to-date and realistic?

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Policy Factors	Economic Factors
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The Siting Challenge

Issues	Opportunities
“Waste” perception	Focus on 3 R’s <ul style="list-style-type: none">• <u>R</u>ecycling• Energy <u>R</u>ecovery• <u>R</u>eplenishing soil

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Odor and vector concerns	Keep it indoors Education
Developer mistrust	Early outreach to community Transparency Real benefits that matter to community

Solid Foundation

- Population density along I-95 and I-84 corridors
- Strong executive leadership
- PA 11-80 framework for renewable energy
- PA 11-217 mandatory commercial food scrap recycling

Needs

- Added energy contracting flexibility and higher volume caps under PA 11-80
- Clarify Class I REC status
- Public education

*There's a better path for organics —
help us get there.*



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