



Anaerobic Digestion: Overcoming the Challenges

EPA New England AD Conference

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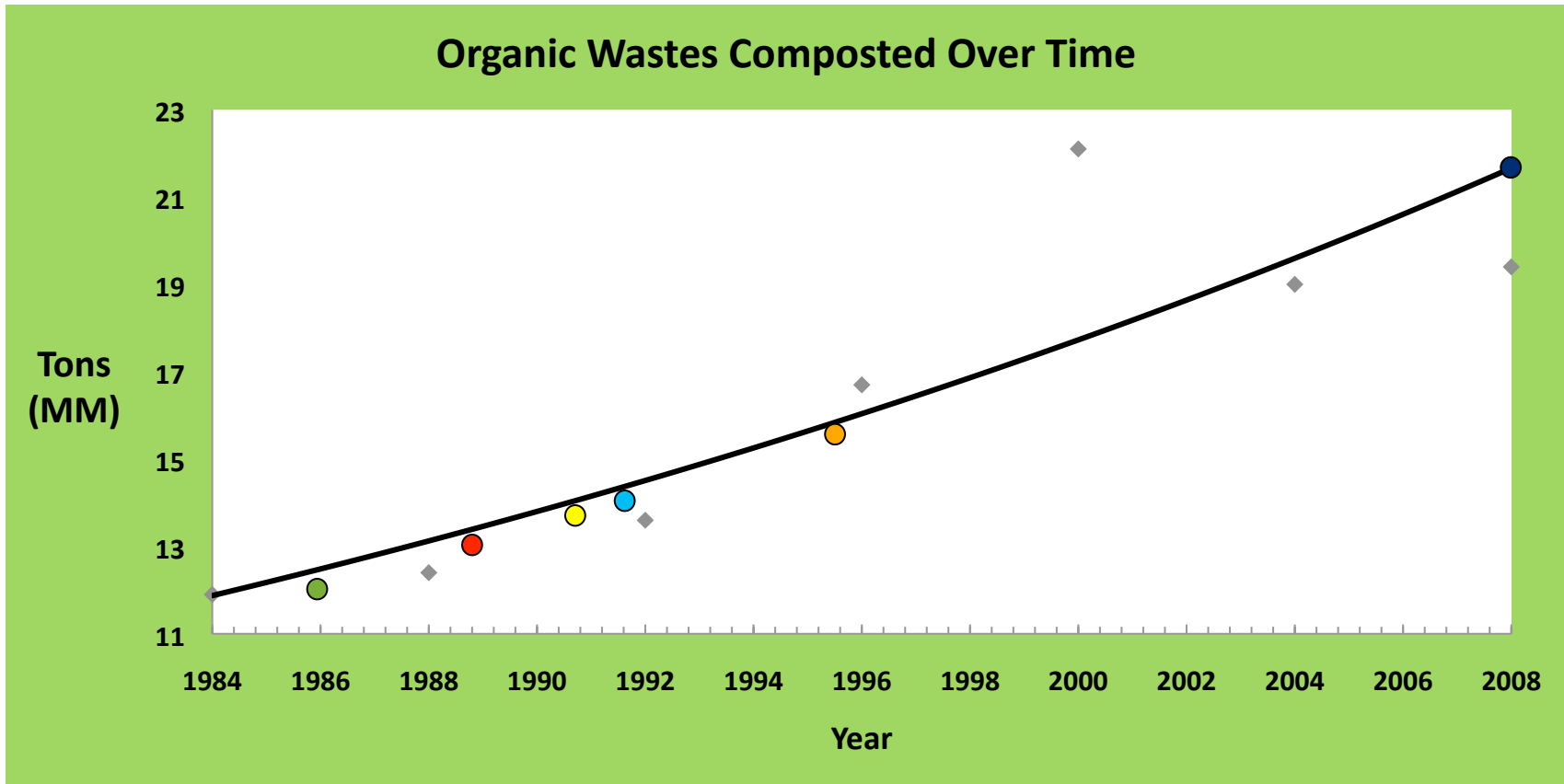
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Harvest Power is ushering in a new era of organic waste management by harvesting the renewable energy and soil-building potential in organic waste at its state-of-the-art organics recycling facilities.

Corporate Profile

- **Business:** Founded in 2008 as builder, owner and operator of organics processing facilities
 - ✓ 3 AD facilities in active development
 - ✓ Operate one of largest compost sites in North America (250,000 MT/year) in Richmond BC
 - ✓ Major compost marketer through Harvest GardenPro
 - ✓ Expanding technology portfolio supported by industry-leading science and technology advisors
- **Capacity:** Handle 1.8 million metric tonnes of waste per year across 15 sites; Sell 29 million bags of soil and mulch and 400,000 cubic yards in bulk
- **Team:** 350 employees; 200+ years experience on management team
- **Revenue:** \$100 million annualized revenue
- **Investors:** Include Kleiner Perkins, Generation Investment Management, Waste Management, True North Venture Partners
- **Capital:** More than \$275 million in equity, debt, & grants raised to date

AD – Can History Repeat Itself?



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

● 1991: Ocean dumping of biosolids completely prohibited

Challenges to AD Development

- **Technology Challenges**

- There are no technology challenges for AD (really?)
- Front-end and back-end innovations required to make economics more attractive

- **Economic Challenges**

- Feedstock collection, logistics, and processing
- Energy off-take
 - Pricing in the age of shale gas
 - Contracting and inter-connect
- Nutrient product markets
- Engineering and construction costs
- Municipal customers



Challenges to AD Development - 2

- **Public Policy and Stakeholder Challenges**

- Siting

- Regulatory framework
- Public engagement
- The Ick Factor

- Regulatory framework

- Permitting
- Mandatory Diversion: The Chicken and Egg Problem

Details on DEP's CERP Website

www.mass.gov/dep/energy/funding_organics.htm

Project Stage	Sited on Public Property	Private Enterprises	Agricultural Enterprises
Planning: Site Assessment	\$\$??	
Planning: Feasibility	\$\$	\$\$	\$\$
Design	??	\$\$	
Project Review	\$	\$	\$
Construction	\$\$	\$\$\$?
Operations	?	\$	\$