



PLDW

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Energy and Organics: Regulatory and Contracting Issues

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Definitions

- **Organic Waste**- organic material including food scraps, food processing residue, vegetative materials, soiled or unrecyclable paper.
- **Anaerobic Digestion (AD)** - a process by which bacteria break down organic materials in an oxygen-free environment, thereby producing certain gasses and solid digestate.

Other Technologies

- **Incineration**- Older means of converting waste into energy by burning
- **Gasification**- Newer alternative of degrading waste in with a small amount of O₂ to produce syngas (an energy source)
- **Pyrolysis**-Newer alternative of degrading waste in the absence of air to produce char, pyrolysis oil and syngas
- **Thermal depolymerization**- Process of reducing organic material into crude oil
- **Fermentation** (wet and dry)- conversion of waste into Biogas

Massachusetts Organic Material Ban

- **What are “organic materials?”**
 - Food or vegetative materials, that can be processed into energy using new technologies
 - Includes:
 - Vegetables
 - Grains
 - Fish and animal products and byproducts
 - Plant material



Massachusetts Organic Material Ban

Alternate means of disposal :

1. Reduce the amount of organic waste produced
 - This will eliminate the need to dispose of that waste altogether
2. Donate or repurpose food items to:
 - Food banks,
 - Soup kitchens
 - Shelters
3. The remaining organic material must be processed by:
 - Composting,
 - Conversion into animal feed,
 - Anaerobic digestion (AD)

Connecticut Organics Ban

- **What is banned?**
Depositing “source separated organic materials” for regular disposal at landfill
- **What are “source separated organic materials?”**

“Organic material, including, but not limited to, food scraps, food processing residue and soiled or unrecyclable paper”



Connecticut Organics Ban

- **To Whom does the ban apply?**
 - Commercial producers of an average of 104 tons per year or more of organic waste, located within 20 miles of a composting facility including:
 - commercial food, wholesalers or distributors, industrial food manufacturers or processors, supermarkets, resorts or conference centers
 - Beginning in 2020, this will apply to producers of an average of 52 tons per year or more

Connecticut Organics Ban

- **Goal of the legislation:**
 - Divert organic waste away from landfills and instead process it at permitted composting facilities within the state



Vermont Food Waste Ban



Vermont Food Waste Legislation

- **What is required?**

- Beginning July 1, 2014, mandated recyclables must be separated separate from other solid waste and delivered to a facility maintained and operated for the management and recycling
- Beginning July 1, 2015, leaf and yard residuals must be separated from other solid waste and delivered a location that manages leaf and yard residuals
- Beginning July 1, 2017, food residuals must be separated from other solid waste and delivered to a location that manages food residuals

Vermont Food Waste Legislation

- “Food residuals” include preconsumer and postconsumer food scraps
- Excludes meat and meat-related products with respect to residuals are composted by a resident on site



Vermont Food Waste Legislation

- **To whom does the food waste ban apply?**

Those within 20 miles of a facility that manages food residual and produce more than:

- 104 tons per year beginning July 1, 2014
- 52 tons per year beginning July 1, 2015
- 26 tons per year beginning July 1, 2016
- 18 tons per year beginning July 1, 2017
- Any person who generates food residuals beginning July 1, 2020

Vermont Food Waste Legislation

- **Goals of the legislation:**
 - Reduction of the amount generated at the source;
 - Diversion for food consumption by humans;
 - Diversion for agricultural use, including consumption by animals;
 - Composting, land application, and digestion; and
 - Energy recovery

Rhode Island Organic Waste Legislation

What is required?

- On and after January 1, 2016, each *covered entity* and each *covered educational institution* shall ensure that the *organic waste materials* that are generated by the covered entity or at the covered educational facility are recycled at an authorized, composting facility or anaerobic digestion facility.



Rhode Island Organic Waste Legislation

Definitions

- **“Organic waste materials”**
 - the organic material portion of the solid waste stream, including, but not limited to, food scraps, food processing residue, and soiled or unrecyclable paper that has been separated from nonorganic material that are generated by a “covered entity” or at a “covered educational facility”
- **“Covered Entity”**
 - commercial food wholesalers or distributors, industrial food manufacturers or processors, supermarkets, resorts or conference centers, banquet halls, restaurants, religious institutions, military installations, prisons, corporations, hospitals or other medical care institutions, and casinos
- **“Covered educational institutions”**
 - higher educational or research institution

Rhode Island Organic Waste Legislation

To Whom Does the Organic Waste Ban Apply?

- *Covered entities and covered educational institutions if:*
 - The covered entity or covered educational facility generates not less than one hundred four (104) tons per year of organic waste material; and
 - The covered entity or covered educational facility is located not more than fifteen (15) miles from an authorized composting facility or anaerobic digestion facility with available capacity to accept such material



Maine Organic Waste Legislation

- Currently no Legislation or Regulation
- However, in 2014:
 - A resolve was enacted that requires the Department of Environmental Protection, with input from stakeholders, to develop a comprehensive strategy to encourage composting and energy recovery from food waste and other organic wastes.
 - The resolve required the Department to submit the strategy and related recommendations to the Joint Standing Committee on Environment and Natural Resources by January 15, 2016.



Maine Organic Waste Legislation

As part of the development of a comprehensive strategy, the Department must:

- seek to encourage:
 - organic waste diversion by large generators of food waste;
 - composting at the municipal level through bans on the disposal of leaves and yard waste; and
 - expansion of facilities to compost and convert compostable materials into energy resources.
- evaluate options for establishing a commercial food waste ban for large generators of food waste that are located within 40 miles of a food waste composting or processing facility that has been approved by the department for receiving commercial food waste.
 - “Large generators” means entities that generate more than one ton of food waste per week
 - including hospitals, colleges and universities, large secondary schools, restaurants, nursing homes, retail food stores and resort facilities

Maine Organic Waste Legislation

- The Department must also:
 - explore strategies for keeping food waste out of the solid waste stream through collaborative initiatives with large generators to divert food products that are at or beyond their manufacturer's expiration dates toward:



- hunger relief programs
and
- farm animal consumption

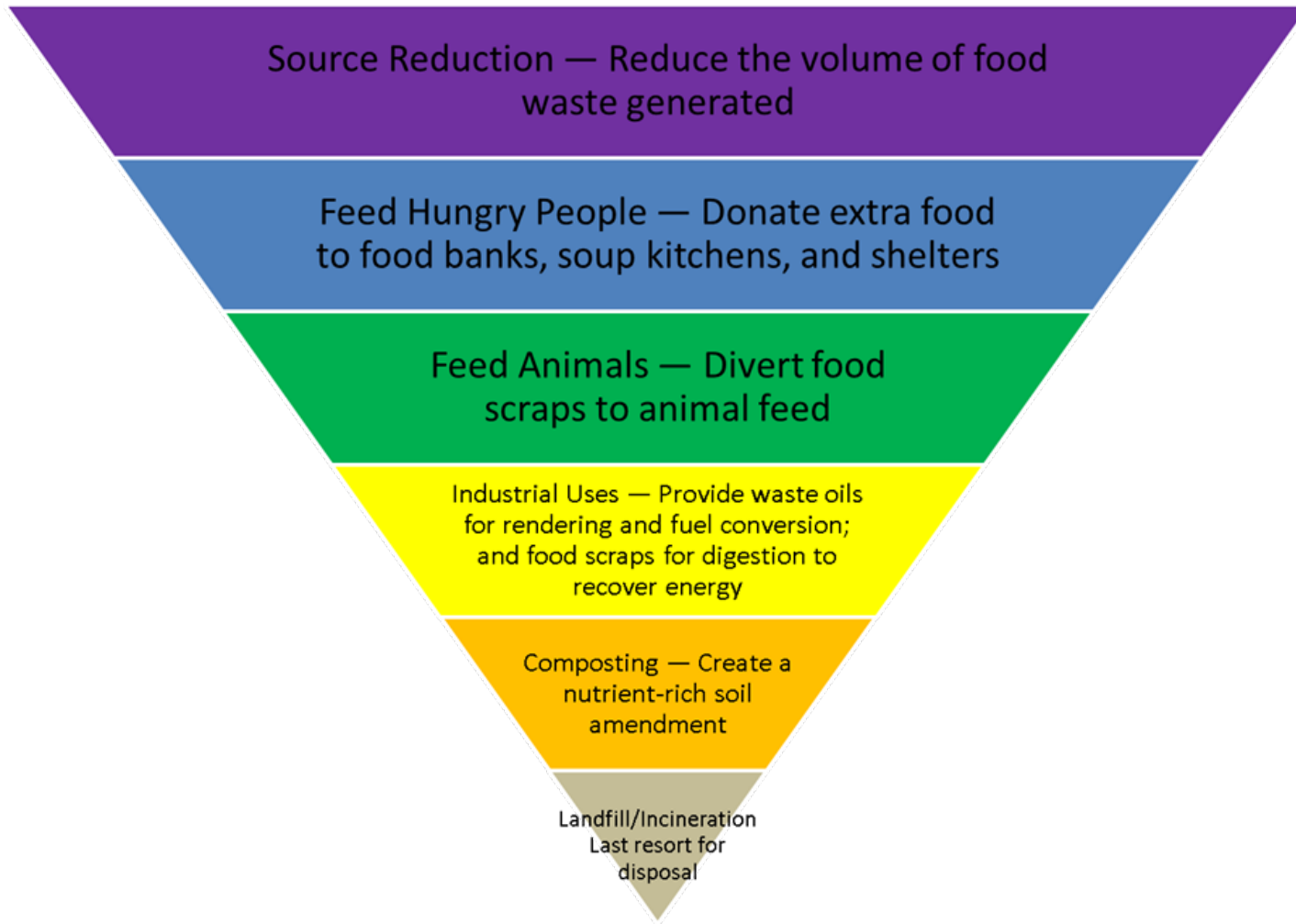


- evaluate impediments to and opportunities for increasing the number of facilities in the State that provide anaerobic digestion of organic waste

Recent Projects

- **Alberta, Canada-** an AD facility was expanded and now processes 200 tons/day of municipal source separated organics, food processing wastes and biosolids, and may go as high as 385 tons/day.
- **San Jose, California-** Phase One of a three phase commercial dry fermentation, AD, and composting facility recently opened. Each phase will process 250/tons per day of solid waste, and are anticipated to produce renewable compressed natural gas to be used as vehicle fuel and 30,000 tons/year of finished compost.
- **Orlando, Florida-** Harvest Power “Central Florida Energy Garden.” Will process more than 120,000 tons of organic materials annually while producing 5.4 megawatts of combined heat and power

Food Recovery Hierarchy



Three areas of significant concern:

- Zoning
- Environmental and site assignment
- Emissions – Where applicable

Zoning

- Table of uses
- Definition or exemption for “solid waste processing facility”
 - How are we defined
 - Are we defined
- Zoning as of right
 - Variances (dimensional)
 - Use Variance
 - Special Permit
 - Site Plan Review

Environmental and Site Assignment

- Wetland and conservation
- Site Assignment for Solid Waste handling

Facilities

- Fatal Flaw Analysis

Application of Site Assignment Criteria

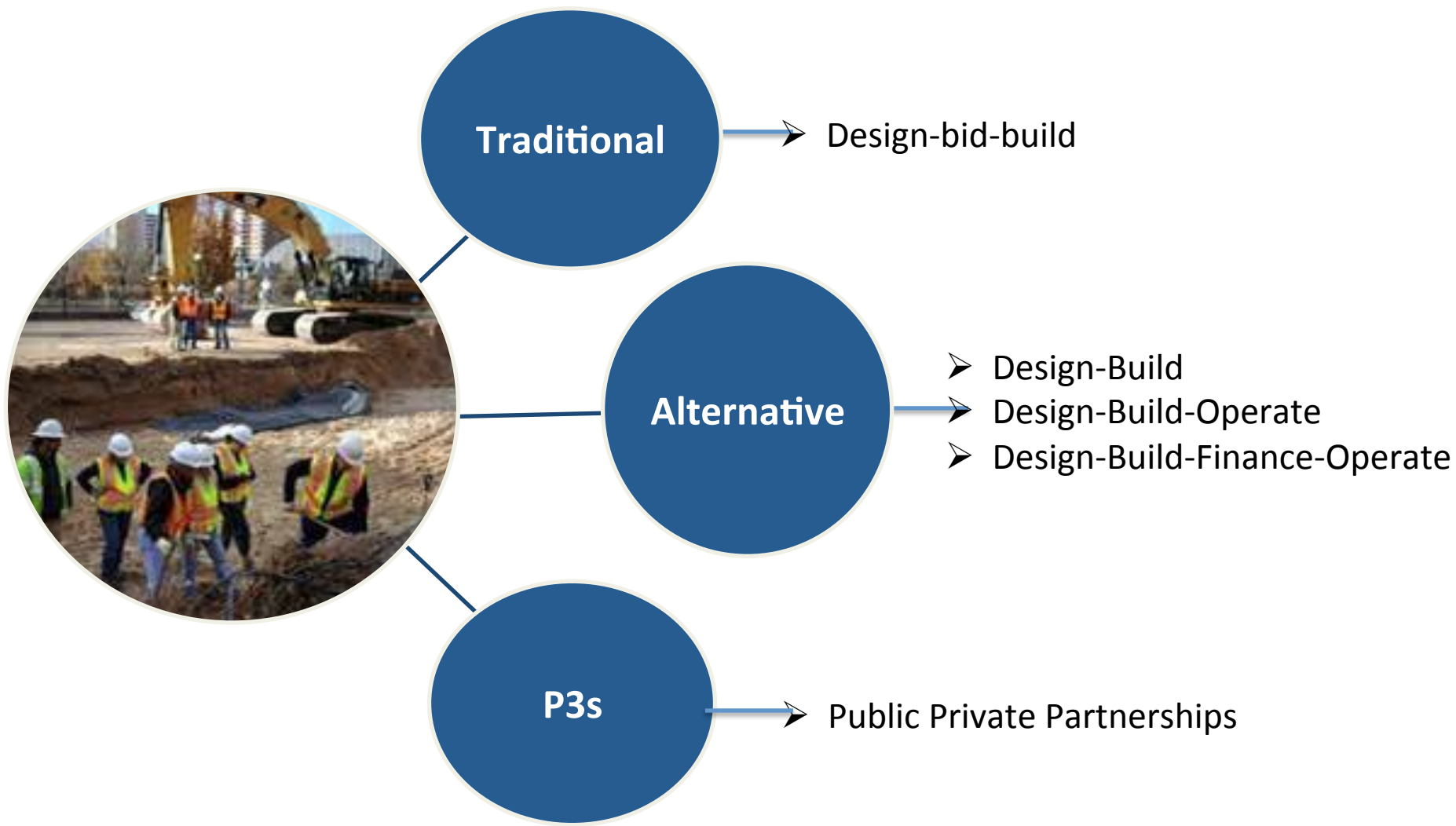
Siting, Permitting and Regulatory Compliance, Air, Emissions and Interconnection

- US EPA air permits for electrical generation facilities (*Got Stacks*)
- Qualified facility or defined utility
- Electrical interconnection agreements
- Net metering or power purchase agreements
 - Public and Private cap
 - Utility pipelines and delays

Summary

- Organics to energy and fuels opportunities are increasing
- Emerging solid waste policies foster development of emerging technologies in waste categories
 - Source separation of separate waste categories
 - Producer responsibility
- Waste bans are on their way for organics
- Broad regulatory frameworks being developed to implement these bans
 - New frameworks for technology and source specific issues
 - Integration with existing federal and state laws regulating waste and emissions
- WHO WANTS TO BE THERE FIRST
- DON'T WORRY, THERE IS PLENTY OF OPPORTUNITY TO GO AROUND

Organics Project Development Delivery Models



Alternative Delivery Model & Evaluation

Alternative Project Delivery Model

“owner contracts with a single entity responsible for design and construction”

Benefits of Alternative Delivery Models

Qualification based selection (“QBS”)

Greater efficiency; single source guarantor

General contractor is engaged at an early stage, unlike traditional project delivery model

A single point-of-responsibility between the owner and the design-builder

Early contractor involvement in design decisions

Integrated design and construction services

Reduced multi-party litigation (finger pointing)

Ability to conduct “best value” procurement

Can allow for negotiation of contract terms prior to execution

Performance and business risk transferred

Alternative Delivery: Threshold Issues & Sources of Authority

Threshold Issues

Authority to utilize alternative project delivery models can be limited.

Some states require lowest responsible bidder approach.

Prior to commencing alternative delivery projects, the public entity must determine if there is legal authority to do so.



Sources of Authority

State law, local charters, special legislation, home-rule authority

Special legislation to grant a limited authority

Procurement Fundamentals: Alternative Delivery

**Legal
Framework**

**Identify
Project Team**

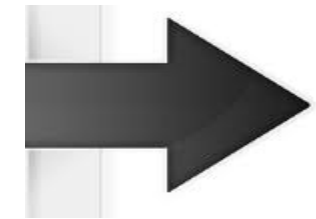
**Request for
Proposals**

**Proposal
Evaluation**

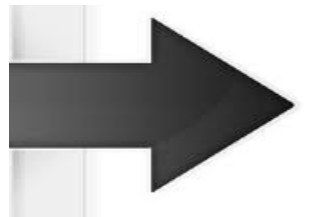
**Contract
Negotiations**

**Contract
Award**

Contractual arrangement between a public entity and the private sector



Shared: skills and assets



Shared: risks and rewards



Benefits of Alternative Delivery in Organics

- Increase recycling
- Provide access to municipal and curbside markets
- Increase ability to aggregate waste streams
- Produce marketable products
- Economic benefits to public entities
- Financial and tax incentives for private industry
- Access to capital and tax exempt financing
- Potential energy and fuel off-takes

Contract Structure: Alternative Delivery

- Key Contractor Services:
 - Process organic wastes
 - Aggregate and process regional organic waste
 - Permit Facility
 - Finance Facility
 - Design, build, own, operate Facility
 - Market off-take and process residuals
 - Electrical Interconnection or fuel off-take contracts

Summary and Takeaways

Alternative Project Delivery Models

- Alternative Project Delivery models for public owners create additional options for organics project development
- Alternative Project Delivery models include P3 options
- Alternative Project Delivery - creates single contractual relationship/one project – one contract
- Time, schedule, budget and operational enhancements



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