

Is California Ready (yet?) for the Conversion of Residual Solid Waste to Energy, Fuels and Chemicals?

Charles A. White, P.E. – cawhite@manatt.com

Solid Waste Association of North America

48th Annual Western Regional Symposium and Trade Show

April 8 to 11, 2019 -- Tenaya Lodge -- Yosemite, California

Navigating Global Conditions

Who Is Manatt?

1



At-a-Glance

Over 450 professionals and consultants

Industries:

- Energy/Environment
- Entertainment and Media
- Financial Services
- Manatt Health
- Real Estate
- Retail and Consumer Products

Services:

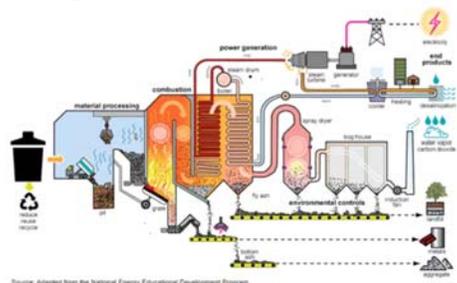
- Business Strategy and Consulting
- Corporate and Finance
- Government and Regulatory
- Litigation
- Media, Technology and Advertising

California and Waste to Energy

2



Waste-to-energy plant



Source: Adapted from the National Energy Educational Development Program

- Two Grandfathered Covanta WTE plants in CA:
 - SERRF in Long Beach, contract that runs until 2024, up to 1,380 tpd.
 - The Stanislaus County Resource Recovery Facility, up to 800 tpd.
 - Few added small Conversion Tech facilities
- Issues:
 - Mixed waste contaminants
 - Not considered “renewable” energy
 - Expensive compared to other sources
 - Air emissions (dioxins, dibenzofurans, metals)
 - Fly ash and bottom ash management
 - NIMBY -- and not flexible and scalable
 - Controversial and uncertain GHG benefits

Chuck White, Senior Advisor | Manatt, Phelps & Phillips, LLP

manatt

Conversion Technologies Can Take Many Forms

3

Category	Technology
Physical	Engineered Feedstock / Fuel
	Maceration and decontamination
	Mechanical Biological Treatment (MBT)
	Mechanical Heat Treatment (MHT)
Biological	Composting
	Anaerobic Digestion
	Fermentation
	Hydrolysis
	Hydrotreating
Chemical	Transesterification
	Combustion
	Gasification
	Pyrolysis
	Torrefaction
Thermo-chemical	Smelting

Projects (Total)	Projects - Waste (US/Canada)
20-100	10-20
Many	10-20
50-100	5-10
50-100	5-10
Many	3,500-4,500
535	28
1,305	0
18	2
30	2
922	22
>2,000	89
256	7
32	2
20-40	10-20
20-40	2-4

Chuck White, Senior Advisor | Manatt, Phelps & Phillips, LLP

manatt

Conversion Technology is not Mass Burn Solid WTE

4

- Waste conversion technologies (WCTs) are non-incineration technologies used to convert the non-recyclable portion of the municipal solid wastestream to electricity, fuels, and/or industrial chemical feedstocks (WTEFC).
- Greater Revenue Potential. Fuel from a WCT facility is valued at \$3 per gallon = \$150 per ton in energy revenues compared with \$30 per ton from traditional WTE facilities.
- Greenhouse Gas Revenues: Cap and Trade, LCFS, RFS2
 - 50% LCFS CI reduction is equivalent to \$0.50/gallon = \$25/ton
- Other Benefits:
 - Lower GHG emissions and same or lower criteria pollutant and toxic emissions & maximize the recovery of recyclables.
 - Can be community sized and scalable.
 - More Efficient & Versatile with Minimal environmental impact.

Technology Examples:

- Gasification** is a low oxygen, non-combustion process that converts biogenic and/or fossil-based carbonaceous materials to fuels & chemicals.
- Pyrolysis** is the process of heating organic material at high temperatures in the absence of oxygen or combustion to produce combustible gases, liquids & char.
- Processed Engineered Fuel (PEF) & Engineered Municipal Solid Waste (EMSW)** converted into a clean, low carbon solid fuel through autoclaving, sorting, screening, drying to meet fuel quality standards for ind. furnaces: >5000 BTU/lb.

PROBLEM: All the above are considered DISPOSAL in California, NOT DIVERSION

Chuck White, Senior Advisor | Manatt, Phelps & Phillips, LLP

manatt

Challenges: The California Public Resources Code

5

- PRC 40192: "solid waste disposal," "dispose," or "disposal" means the management of solid waste (by) landfill disposal, **transformation, or EMSW conversion**, at a permitted solid waste facility, unless defined otherwise.
- PRC 40180: "Recycle" or "**Recycling**" means the . . . *collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace.* "**Recycling**" **does not include transformation, or EMSW conversion.**
- PRC 40201: "**Transformation**" means **incineration, pyrolysis, distillation, or biological conversion other than composting.** "**Transformation**" **does not include composting, gasification, EMSW conversion, or biomass conversion.** (Note: **Incineration** is a waste treatment process that involves the combustion of organic substances contained in waste materials)
- PRC 40117: "**Gasification**" means a technology that uses a noncombustion thermal process to convert solid waste to a clean burning fuel for the purpose of **generating electricity**, and: . . . **does not use air or oxygen in the conversion process**, . . . **no discharges of air contaminants or emissions**, including greenhouse gases, . . . **no discharges to surface or groundwaters of the state** . . . **produces no hazardous waste** . . .
- Other clarifying changes needed to **biomass conversion** and **EMSW conversion**

Chuck White, Senior Advisor | Manatt, Phelps & Phillips, LLP

manatt

But Wait . . . Do CalRecycle SB 1383 SLCP Regulations Provide An Option?

6

- Purpose is divert organic waste from landfill disposal to reduce methane.
 - 75% Organic Waste Reduction by 2025
 - SB 1383 authority to CalRecycle is in H&SC, **NOT PRC.**
- CalRecycle Received 250+ Comments, raising 2300+ issues.
- Don't Forget Article 2: Technologies That Constitute a Reduction in LF Disposal
 - Recycling Center, Food Recovery, Composting, Anaerobic Digestion, Biomass Conversion, Land App, Animal Feed, & **"Approved Operations that reduce SLCPs"**
 - Apply to CalRecycle and Review by CARB
 - **Permanent** GHG reduction Equal or Greater than composting of organic waste (> 0.30 MTCO₂e/short ton of organic waste), may include waste to energy, fuels and chemicals:
 - Diversion of organics from landfill equivalent methane GHG reduction,
 - **Plus**, GHG reduction from uses of energy, fuel, & chemical alternatives to fossil fuels,
 - **Minus**, Fossil Energy Use.
 - If Approved as a Verified Technology = Reduction of Landfill Disposal,
 - But, may still be Disposal as Transformation pursuant to PRC (Incineration/EMSW)



But, Reduction from Landfill Disposal Under SB 1383 may still be Disposal under the PRC: AB 939 & AB 341

Chuck White, Senior Advisor | Manatt, Phelps & Phillips, LLP

manatt

What about China's National Sword?

7

- The National Sword is a campaign launched by China's Customs Administration starting in Feb 2017.
- Started with the goal of cutting down on "foreign waste," including plastics (~fossil) & waste paper (~biogenic)
- Allowable thresholds of contamination have been dropped to 0.3% (or below) for virtually all categories of waste, including paper and plastics.
- Sending recyclables to China, India *and entire Pacific Rim* likely to be harder and more expensive.
- Significantly Increased quality standards for recyclables.
- Increasing residual waste from recyclable processing requiring landfill disposal . . . Or Alternative Options !!
- **Will Waste to Energy, Fuels and Chemicals pay a Role?**



Chuck White, Senior Advisor | Manatt, Phelps & Phillips, LLP

manatt

Litter, Stormwater and Marine Debris

8

- The top packaging items collected (by number of items, not by weight) from 1989 to 2012 were:

- Bags (paper and plastic)
- Food wrappers/containers
- Caps and lids
- Cups
- Glass beverage bottles
- Plastic beverage bottles
- Beverage cans



- SWRCB: Zero Trash to Waters of State by 2030:
- Two Options:
 1. REDUCE: Prevent Trash from being discharged to the Environment **See # 1 Above**
 2. MANAGE: Intercept after discharge followed by . . . **#2, #3, #4, OR #5**

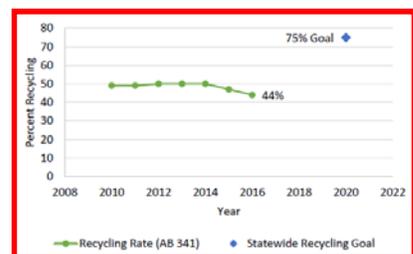
Chuck White, Senior Advisor | Manatt, Phelps & Phillips, LLP

manatt

What's the Problem?

9

- Is there a problem with recycling of plastic & paper packaging materials?
 - AB 341, Chesbro (2011) – Goal of achieving a statewide 75% waste recycling rate by 2020.
- Will increased fees on packaging disposal help solve the problem?
- Does CalRecycle need to impose further mandatory controls?
 - Recycling, EPR, minimum content, product standards and Source Reduction?
- Is the China Sword the Problem? Or has there been an unrealistic reliance on recycling capacity outside of California?
- Are the limits on converting waste to energy, fuels and chemicals a problem?
 - Ironically, CARB's LCFS needs more low carbon fuel -- and conversion technologies can produce both low carbon fuel and new plastic feedstocks.
- Are California's Aspirational Goals Appropriate? Realistic? Achievable? Can we expect California to Achieve 75% recycling by 2020? Or, 2025? Or, 2030? Without Markets?



Chuck White, Senior Advisor | Manatt, Phelps & Phillips, LLP

manatt

Next Steps

10

1. Identify & Organize Coalition of Stakeholders
2. Implement Article 2 of Proposed SB 1383 Regulations – will it be possible to approve and site waste to energy, fuels and chemicals in CA?
3. Advocate Cleanup Modifications to PRC for the Management of **Residual** Solid Waste.
 - a) Modernized Hierarchy to recognize Energy Recovery and Avoidance of Unmanaged Dispersion
 - b) Allow Gasification, Pyrolysis, and other Technologies to be permitted as form of Solid waste “Recovery” with Recycling and Diversion Credit
 - c) Allow Biomass Conversion with de minimis amounts of other materials in compliance with appropriate standards.
 - d) Allow PEF or EMSW to county as “Recovery” not “Disposal” with reasonable limits.
 - e) Other modifications?



Chuck White, Senior Advisor | Manatt, Phelps & Phillips, LLP

manatt

11

**ANY
QUESTIONS?**



Chuck White, Senior Advisor | Manatt, Phelps & Phillips, LLP

manatt