EBC Connecticut Program
Connecticut Solid Waste Management Update
Welcome

Dana Huff, P.E.

Program Chair & Moderator
Chair, EBC Connecticut Chapter
Vice President, Tighe & Bond
Program Purpose and What You Will Learn

Jeff Martirano

*Program Chair and Moderator*

*Project Manager*

*HDR Engineering, Inc.*

Environmental Business Council of New England
*Energy  Environment  Economy*
Legislative Developments Impacting Solid Waste Management

Christopher P. McCormack

Member
Pullman & Comley, LLC
Solid Waste Management: Connecticut Legislative Developments

EBC Connecticut Solid Waste Program

Christopher P. McCormack
October 19, 2018
Your Tax Dollars At Work
Your Tax Dollars At Play
2018 Session Solid Waste Proposals

- Tires
- Fracking Waste
- Glass
2018 Session Solid Waste Enactments

- Glass
Tires
Tires

- **Scale of the Problem**
  - 3.5 million used tires per year in Connecticut*

- **Options**
  - Tire-Derived Fuel (out of state)?
  - Beneficial Reuse (as what)?
  - Extended Producer Responsibility?
  - Regulate Haulers?

* Long Term Management Options for Scrap Tires in Connecticut (DEEP 2016)
Tires

- HB 5128 (File Copy 1)
  - License Tire Haulers
  - Maintain “manifests” (a la RCRA?)
  - Exception: transporting tires for “verifiable personal use”
Tires

- Crumb Rubber Playing Fields: HB 5188 (File Copy 10)
  - *Moratorium* on use at municipal fields, public school playgrounds …
  - … pending results of *Federal Research Action Plan on Recycled Tire Crumb Used on Playing Fields* (EPA; anticipated fall 2018)
  - Cf. CT Department of Public Health *assessment* and *fact sheet*
Fracking Waste
Fracking Waste

- What even is it??
- We could …
  - Ban it outright
  - Regulate it as hazardous waste
  - Permit treatment/processing
Fracking Waste

- **Status Quo (sort of):**
  - PA 14-200 (Conn. Gen. Stat. §22a-472): *ban* until DEEP issues regulations for management *as hazardous waste*
  - July 1, 2018 deadline to submit draft regs to General Assembly Regulatory Review Committee

- **2018 Session SB 103 (File Copy 12)**
  - Original proposal: unconditional ban
  - As amended: ban fracking waste AND waste from natural gas and oil “exploration” [new, not previously defined or regulated]
Fracking Waste

- Meanwhile, at the grass roots …

- … making no one happy: “Interest Groups Tangle Over Fracking Waste Ban Ordinances”
Fracking Waste

- Environmental Acronym of the Year:
  - Naturally
  - Occurring
  - Radioactive
  - Material
The Problem…

The Usual Suspects, 2018 Edition
- Raise refund to twenty-five cents
- Extend refund program
to wine and liquor bottles
Glass

- Enacted Legislation: PA 18-181, Section 12
  - Pilot Program to *separate glass from recycling stream*
  - Two years
  - Upon request of a municipality
  - Collection by third party/ies
  - Separate glass from *and prohibit glass in* curbside recyclable collection
  - DEEP to report to Environment Committee, including recommendations for legislation
Glass

- Mandatory Elements of Pilot Program:
  - One or more locations to collect glass at no charge to residents
  - Information about program for residents
  - Collection of data required by DEEP to measure program outcomes
  - Other requirements as determined by DEEP

- DEEP SWAC presentation

- DEEP municipal recycling information page including link to pilot program application form
The People’s Work: Serious Business

- PA 18-60, section 1:
  - “Cable Technician Recognition Day”
  - September 8
  - “Suitable exercises may be held in the State Capitol and elsewhere as the Governor Designates for the observance of the day.”
Questions?
Contact Information

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These slides are intended for educational and informational purposes only. Readers are advised to seek appropriate professional consultation before acting on any matters in this update. These slides may be considered attorney advertising. Prior results do not guarantee a similar outcome.
Overview of Recycling in USA and New England

Steve Changaris

Northeast Region
National Waste & Recycling Association
CT EBC Recycling Presentation
October 19, 2018
Connecticut and Northeast Region
Update
• What is recycling?

• Generators putting designated after useful life materials in bins/containers?

• Haulers collecting them?

• Processors sorting/baling them for market?

• Manufacturers using these recovered materials in new products?
• Recycling markets today and China

  • Business produces about half of the material diverted from disposal and into recycling in CT

  • There is severe turmoil in recycling markets today; so severe, recycling operations and your bottom line will be affected for years to come

  • Why? China’s changing/changed behavior regarding consumption of recyclable commodities
• China’s “environmental” awakening
  • 2008 Olympics (mill closures/5 Year Party Congress/recession)
  • 2013 Green Fence
  • 2017 National Sword
  • 2017 Prohibitives standard/import restrictions
  • 2018 Operation Blue Sky
  • 2018 Recyclable Imports – 1 month suspended (for now)
  • Next “shoe to fall”??

• China’s corresponding recycling “economic” awakening
  • 250 substandard mills closed/new vision: Environmental Friendly Ecoparks
  • 2021 target to have self-sustaining recyclable feedstocks
Clear Vision: Recycling is here to stay; and quality will be the name of the game for all of us going forward.

Two key steps to make recycling sustainable and fulfill its promise:

1. All generators need to reduce contamination going in

Question: RE: New Quality Standards -- Can they be achieved with inbound domestic MRF/recycling center recyclable feedstocks with 25% +/- contamination?

2. Improve processing “inside” the MRF/recycling center
• We got here together; we have to work together to reduce contaminants in the materials we endeavor to recycle
  • Educate, Educate, Educate
  • Government & Business need to help

• The cost of increased education, recycling programs management, labor and retro-fitting/upgrading MRF/recycling centers will be borne by all

• The value of recyclable commodities has shifted for the worse (for now); more have a negative than positive value; matching supplies to markets very difficult
• Mixed paper and mixed plastics “banned” from China

• China’s actions = why recyclable commodity supply is out of synch with demand (a/k/a – Better than the Perfect Storm)
  • demand depressed
  • commodity supplies in surplus
  • new quality control requirements
  • higher processing costs
  • lower commodity values (esp. fiber)
  • transportation/logistics
CT EBC Recycling Update

• Actions to take

  • Sit down; talk to; work with your in-house recycling team; and hauler; and processor; this is real

  • Review your operations – clean up your recyclables
    • Develop internal continuous recycling improvement protocols

  • Be prepared to pay more for all aspects of this essential environmental service
Parting thoughts

• What’s in the recycling bin/what should be in the recycling bin?
• Best Management Practices for generators/recycling facilities
• The evolving ton/packaging changes
• Sustainable materials management
• Contact Information:
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  CT NWRA Chapter Director
  800 679 6263
  schangaris@wasterecycling.org

www.wasterecycling.org
Developments Impacting Glass Recycling

Louis P. Grasso, Jr.
LEED-AP
Managing Partner
Urban Mining Northeast, LLC
Presentation
To the
EBC Connecticut Program
Connecticut Solid Waste Management
Updated

Friday, October 19, 2018
National Glass Recycling Problem

- According to EPA’s latest numbers, approximately 12 million tons of glass goes into the municipal solid waste stream
- Approximately 29%, or 3.5 million tons is recovered for recycling
- Glass is heavy and costly to handle
- Glass recycling rates are historically low
Regional Glass Recycling Problem

- Traditional glass recycling is into new bottles
- Few regional markets are available
- Transportation costs to distant markets reduce profitability and recyclability
- Ardagh Milford, MA plant closing created huge void in the regional customer base
- Glass that is the wrong color and too small is piling up
Industry Problems and Solutions

- Recycling Industry:
  - The current economics for MRF glass are quite poor because of bottle manufacturer specifications and cleanliness of MRF glass
  - **Solution**: The Pozzotive® process utilizes any size and color of glass and ceramics, increasing both the value and utilization of glass. *UMN also has a proven solution for CRT panel glass.*
Industry Problems and Solutions

- **Cement Industry:**
  - The EPA estimates that a ton of Cement production generates a ton of CO\(_2\).
  - **Solution:** The production and use of Pozzotive\(^\circ\) as a replacement for up to 40% of Cement, significantly reduces related CO\(_2\) production.

- **Pozzolan Industry:**
  - Recent regulations placed on coal-fired power plants have caused shut downs and conversions to natural gas.
  - **Solution:** Pozzotive\(^\circ\) helps fill these voids, particularly in the northeast US.
Hallett’s Point Demonstration

- Concrete was placed having an 8,000 psi design strength.
- Contained 270 lbs of Pozzotive per yard of concrete.
- 35% of the cement was replaced with Pozzotive.
- After 56 days, the average strength of the test cylinders was over 12,000 psi.
**CCNY Testing**

- The Rapid Chloride Permeability Test (ASTM C1202) measures electrical conductivity – the lower the conductivity the less chlorides can penetrate the concrete.
- The 282 coulombs for 40% Pozzotive compared to 1,617 for straight cement means that if chlorides reach reinforcement bars in 40 years in cement only concrete, it will take 229 years to penetrate the 40% Pozzotive concrete.
- This represents huge savings for Connecticut if Pozzotive is used by ConnDot and municipalities.

<table>
<thead>
<tr>
<th>Concrete Mix</th>
<th>Coulombs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement only</td>
<td>1,617</td>
</tr>
<tr>
<td>40% of cement replaced with slag</td>
<td>1,100</td>
</tr>
<tr>
<td>30% of cement replaced with fly ash</td>
<td>500</td>
</tr>
<tr>
<td>20% of cement replaced with Pozzotive</td>
<td>456</td>
</tr>
<tr>
<td>30% of cement replaced with Pozzotive</td>
<td>436</td>
</tr>
<tr>
<td>40% of cement replaced with Pozzotive</td>
<td>282</td>
</tr>
</tbody>
</table>
Site Plan
INNOVATIVE
SUSTAINABLE
RESPONSIBLE

Pozzotive® is an environmentally friendly postconsumer Supplementary Cementitious Material/Pozzolan that replaces a percentage of Portland cement in concrete.
Focus of Conservation Law Foundation in Connecticut

Bob Milligan

Vice President
Closed Loop Partners
CLOSED LOOP fund

October 19TH, 2018
The Closed Loop Fund is a social impact fund investing $100M to increase the recycling of products and packaging.
The Closed Loop Fund is building local and national recycling infrastructure to create systemic value for the entire value chain.

**REDUCE COST OF GOODS**
- Increase supply of recycled commodities for use in manufacturing.
- Protect supply from resource scarcity and price volatility by recovering material from waste stream.

**MEET CONSUMER DEMAND**
- Meet consumer, societal demand for recyclable products
- Ensure customers have access to recycling where and when they need it

**REDUCE REGULATORY RISK**
- Proactively protect revenue from regulatory risk
- Partner with cities to solve an expensive problem, landfill fees.

**IMPROVE TRANSPARENCY**
- Gain accurate data on GHG reduction and financial savings from recycling
- Social impact that is synergistic with the business goals.
The Closed Loop Fund unlocks recycling value by providing **low interest loans** to cities and companies to build recycling infrastructure.

**CLF INVESTMENT AREAS:**

**COLLECTION:**
- Single stream carts
- Multi-family residential collection
- Trucks

**SORTING:**
- New MRF builds
- MRF upgrades
- Expansion to new materials
- Solutions to reduce contamination
- New Technology

**PROCESSING AND END MARKETS:**
- Better ways to process low value materials (glass, plastics)
- New end markets for low and high value materials

**CRITERIA:**

- **SCALABILITY**
- **INCREASED TONNAGE**
- **ABILITY TO PAY BACK**
- **REPORTING**

**To Apply:**

Visit [www.closedlooppartners.com/apply](http://www.closedlooppartners.com/apply) to download the application.

Application period is rolling.

Email info@closedloopfund.com for more information.
Example: Memphis, TN

Memphis, TN

**Investment**: City-wide single-stream cart roll-out

**Reach**: 300,000 households

**Total Project Cost**: $5,250,000

**Closed Loop Fund Portion**: $3,250,000

**Co-investment unlocked**: $2,000,000

**Annual Impact at Scale**: 17,000 tons diverted; 48,000 GHG MTs avoided
The Closed Loop Fund unlocks recycling value by providing low interest loans to cities and companies to build recycling infrastructure.

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Example: Lakeshore Recycling

Lakeshore Recycling (MRF)
Chicago, IL

Investment: Chicago based MRF and hauler

Reach: Chicago-land market

Total Project Cost: $8,000,000

Closed Loop Fund Portion: $1,500,000

Annual Impact at Scale: 115,000 tons diverted from landfill, 325,000 tons of GHG saved.
The Closed Loop Fund unlocks recycling value by providing low interest loans to cities and companies to build recycling infrastructure.

CLF INVESTMENT AREAS:

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Example: IntegriCo

IntegriCo
Sarepta, LA

**Investment:** Scale manufacturing of rail ties using #3-7 plastics

**Reach:** National

**Total Project Cost:** $18.6 M

**Closed Loop Fund Portion:** $2.85 M

**Annual Impact at Scale:** 15,000 tons diverted from landfill; 45,000 tons of GHG reduced and avoided
Project Criteria

FINANCIALS
Applicants must demonstrate long term financial viability of project.

REPORTING
Applicants must demonstrate the ability to provide detailed reports.

SCALABILITY
Applicants must demonstrate that the project can scale and be replicated in other markets.

TONNAGE
Applicants must demonstrate that the project will generate a significant increase of tonnage returned to the supply chain.
CLF’s First Investments: From Collections to Manufacturing

• $48.6M deployed or committed to 20 projects
• OVER $100m In co-funding
CLP invests in and develops innovation to scale circular supply chains

Investors and partners include leading corporations, family offices and foundations.
DEEP AND CLOSED LOOP FUND MOU

PRIVATE / PUBLIC COLLABORATION
THANK YOU
Connecticut’s Solid Waste: Where Will It Go?

Christopher Koehler

Solid Waste Section Manager
HDR Engineering, Inc.
The Numbers by State

- MA – 9 Active MSW LF; 7 WTE
- CT – 0 Active MSW; 5 WTE
- RI – 1 Active MSW; 0 WTE
- NH – 6 Active MSW; 1 WTE
- VT – 1 Active MSW; 0 WTE
- ME – 42 Active Sites; 3 WTE
USEPA MSW Generation Estimates (1960-2013)
2017 CT OOS Waste Exports (CTDEEP)

- 830,000 tons of MSW as Reported by CT Transfer Stations
- 721,000 tons of Bulky/C&D Waste as Reported by CT Facilities
- 570,000 tons of Recyclables as Reported by CT Facilities
- Total of 2,121,000 tons Exported
2017 CT OOS MSW AND C&D DISPOSAL

- **MSW***
  - NY – 24%  200,000 tons
  - OH – 36%  500,000 tons**
  - PA – 13%  85,000 tons
  - MA – 26%  45,000 tons

- **C&D**
  - NY – 5.4%  134,000 tons
  - OH – 79.7%  575,000 tons**
  - PA – 1.3%  9,700 tons
  - MA – 0.4%  2,800 tons

* Estimate
HOW DOES IT GET THERE?

- NY, PA, OH, MA

- Building Transfer Stations

- Rail and Truck
  - 100-tons/Gondola Car
  - Intermodal Containers (4 per Rail Car; ~88 tons)
  - Bale and Flatbed Trailer
  - Transfer Trailers (30-tons)
FOOD FOR THOUGHT

- Connecticut
  - In 2017, CT Exported about 830,000 tons of MSW
  - Heavily Reliant on Waste-to-Energy
  - Ageing WTE Facilities?
  - Future of Mid-Conn WTE?
  - Limited Tonnage for Trucks
FOOD FOR THOUGHT

- Recycling – Stuck around 30-35%
- Emissions
  - Long Distance Transport vs. Local Landfill/WTE Disposal
- Upset Conditions at WTE Facilities
- Major Weather Events
  - 500,000 tons of Storm Debris
- Landfill Taxes
- Transportation/Fuel Costs
- Emerging Technologies
Thank you.

Questions & Comments?

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(617) 603-6363
Solid Waste Section Manager
Moderated Discussion

Moderator:

• Jeff Martirano, HDR Engineering, Inc.

Panelists:

• Steve Changaris, National Waste & Recycling Association
• Lou Grasso, Urban Mining Northeast, LLC
• Christopher Koehler, HDR Engineering, Inc.
• Christopher McCormack, Pullman & Comley, LLC
• Bob Milligan, Closed Loop Partners