Municipal Solid Waste Services in Connecticut

Staff Briefing
Legislative Program Review and Investigations Committee
October 8, 2009
Scope of Study

- Expanded 2008 briefing - resources recovery ownership

- Describe solid waste management services
  - Subject of this briefing

- Examine adequacy, cost, sustainability
  - Next phase
Presentation Contents

- MSW System Components and Trends
- Participants and Planning
- Collection and Transfer
- Recycling
- Resources Recovery
- Landfills
Waste System Components

- Generation/Separation
- Collection
- Transfer
- Transportation
- Transformation
- Disposal
Waste System Components

Generation/ Separation  Collection  Transfer  Transportation  Transformation  Disposal

Municipal (Commercial and Residential)
Hazardous Waste
Construction & Demolition/ Oversized MSW
Other Special Wastes
Waste System Components

- Generation/ Separation
- Collection
- Transfer
- Transportation
- Transformation
- Disposal

- Curbside
- Transfer Station
- Truck
- Provision of Collection Facility/ Receptacle
- Other Separation Facilities
- Train
- Redemption Center
- Ship

Section III
Municipal Solid Waste (MSW) Overview

- MSW = solid waste from residential, commercial, and industrial sources

- Excludes:
  - solid waste with significant amounts of hazardous waste,
  - land clearing debris,
  - demolition debris,
  - biomedical waste, sewage sludge, and scrap metal
Most MSW Disposed at RRF

- In-State RRFs: 64%
- Recycled: 24%
- Landfill: 4%
- Out-of-State Disposal: 7%
Increasing MSW Generation

[Graph showing the trend of MSW generation, recycling, and disposal from 1992 to 2003.]
MSW Per Capita Increase

- MSW Disposed Per Year
  - Up 13.5% from 1993 to 2003

- Connecticut Population
  - Up 5.5% from 1993 to 2003

- MSW Disposed Per Capita Per Year
  - Up 7.5% from 1993 to 2003
In-State Disposal Capacity Shortfall

- **2003 (FY)**
  - Useable Capacity: 2,500,000 tons
  - RRFs: 200,000 tons
  - CT Landfills: 0 tons
  - Out-of-State Landfills: 25,000,000 tons

- **2006 (CY)**
  - Useable Capacity: 2,000,000 tons
  - RRFs: 1,000,000 tons
  - CT Landfills: 0 tons
  - Out-of-State Landfills: 25,000,000 tons
Most Reliant on Resources Recovery Facilities

Percentage of Waste Stream

- **Connecticut**: 24.2%
  - Landfill: 10.9%
  - RRFs: 64.9%
  - Recycling: 4.4%

- **National**: 28.5%
  - Landfill: 64.1%
  - RRFs: 3.5%
  - Recycling: 2.4%

- **New England**: 29%
  - Landfill: 36%
  - RRFs: 35%
  - Recycling: 9%
Presentation Contents

- MSW System Components and Trends
- Participants and Planning
- Collection and Transfer
- Recycling
- Resources Recovery
- Landfill
## Participants: Responsibility for MSW Divided

<table>
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<th>REGULATION</th>
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State Planning

- State Solid Waste Management Plan (SWMP)
  - Required by statute; DEP develops
  - CRRA has mandated portion

- 2006 SWMP
  - Premise is self sufficiency
  - Key issue capacity shortfall – solve by doubling diversion rate
  - 8 of 80 strategies implemented
Waste Reduction and Recycling Must be Emphasized

Most Favored Option

Source Reduction
Recycling
Composting
Bulky Waste Recycling
Resource Recovery
Incineration
Landfill

Least Favored Option
Plan Implementation

- **CRRA**
  - Build SW facilities to support the plan
  - Plan of operations, DEP approval required

- **DEP**
  - Solid Waste Management Advisory Committee

- **Municipalities and Municipal Authorities**
  - Any action consistent with plan
  - Actual disposal practices may not be in line with plan
Participants and Planning

- Federal, state, local, quasi-public, private sector
- Required state plan developed by DEP, implemented by others
- Plan must reflect preferred methods
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Types of Collection

- Municipal collection
- Municipality contracts with private collector
- Municipal drop off
- Resident contracts with private collector
- Combination
Residential and Commercial MSW Collection, 2008

Private collectors contract with Res./Bus.
Self-haul to transfer station or disposal
Private collector hired by municipality
Municipal pick up (public employees)
Other

Source of Data: DEP  More than one response is possible

0 20 40 60 80 100 120 140 160

Commercial  Residential
Residential and Commercial Recycling Collection, 2008

- Self-haul to transfer station or disposal
- Private collectors contract with Res. / Bus.
- Private collector hired by municipality
- Municipal pick up (public employees)

Source of Data: DEP  More than one response is possible
Collection

- Legal Requirements
  - Register with municipality; practices vary
  - Handling of recyclables, including role in enforcement

- Flow Control
  - Has changed over the years
  - Municipality cannot direct hauler to private disposal facility without a contract with hauler
  - Can impact liability and financing for facilities in future
Collection

- Anti-competitive practices
  - Extensive price fixing
  - No legislative solutions

- Data
  - DEP unable to get all solid waste disposal data
Transfer Stations

- Intermediate collection and aggregation points

- 255 Permittees
  - 171 public
  - 84 private

- Largest (Danbury) was privately owned, being auctioned
  - 84 % of MSW in Danbury region flows through

- Provide flexibility, potential for rail transfer out of state
Collection and Transfer

- Collection system is complex and varied
- Haulers influence where waste goes
- Anti-competitive practices; no legislative changes enacted
- Transfer station – aggregation point links collection and disposal
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Recycling

- Recycling is:
  - “the processing of solid waste to reclaim material”
  - a combination of mandatory and voluntary components
Recycling

- Certain items are required to be recycled:
  - Fiber (corrugated cardboard, office paper, newspaper)
  - Food containers (metal and glass)
  - Leaves
  - Scrap metal
  - Other (Batteries and waste oil)
Recycling

- What can be recycled (beyond mandatory):
  - Plastics 1 & 2, Magazines, Discarded Mail
    - at least 85% of towns responding
  - Coated Paper Cartons, Telephone Books, Chipboard
    - over 50% of towns responding
  - Plastics 3-7
    - over 25% of towns responding
Percentage of Recycled Material (FY 2008, by weight)

- Fiber, 51.7%
- Organics, 37.1%
- Metals, 4.8%
- Electronics, 0.2%
- Containers, 6.1%
- Other, 0.3%
Flow of Recyclables

Source Separation

- Curbside Collection
- Single Stream Collection

Dual Stream Collection

Transfer Station

- Single Stream IPC
- Dual Stream IPC

Redemption Center

Marketed Material

Source: PRI staff
Flow of Recyclables

Source Separation

Curbside Collection

Dual Stream Collection

Single Stream Collection

Transfer Station

Single Stream IPC

Dual Stream IPC

Marketed Material

Redemption Center

Source: PRI staff
Curbside Recycling

- Dual-stream collection
  - Recyclables separated into:
    - Fiber/paper
    - Commingled containers
  - Predominant method in Connecticut
Curbside Recycling

- Single-stream collection
  - All recyclables in one container
  - Available only with single-stream sorting facility
  - Growing availability/use in Connecticut
Intermediate Processing Center

- IPCs:
  - Sorting facility for recyclables
  - A special kind of transfer station
  - A “disposal” site for recyclables
  - Sort paper and containers, not organics
IPC in Connecticut

- 7 IPCs in Connecticut
  - 2 have only single stream lines
  - 1 has dual and single stream lines
  - 4 have only dual stream lines

- Combined capacity 3 times the amount of materials processed in FY 08
Recycling Costs

- Recycling tip fees lower than MSW
  - Lower prices based on sale of recyclables
    - Some revenue sharing
  - Often attached to MSW tip fee
  - Range:
    - paying $40 per ton
    - being paid $17 per ton
Recycling Costs

- Tons recycled are tons not disposed at higher MSW tip fee
  - Save the difference tipping fees
    - $40 - $90 per ton
  - Economic incentive to recycle
Composting

- Composting is a form of recycling
  - Current infrastructure is for yard waste
    - 333,100 tons of leaves and grass clippings
  - Missing infrastructure for food waste
    - Institutional food waste is the “low-hanging fruit”
    - ~100,000-150,000 tons from 1,300 producers
Recycling

- Wide town-to-town variation in recycling practices
  - Range of material
  - Collection method

- Infrastructure:
  - Good for what is commonly recycled
  - Missing for additional areas

- Recycling rates in CT are stagnant
  - SWMP calls for increase to address capacity shortfall
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Resources Recovery

- RRFs serve two basic functions
  - MSW disposal
    - 75% of FY 08 disposal (non-recycled)
  - Electricity Generation
    - 2.7% of CT capacity
## RRFs in Connecticut

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<th>Location</th>
<th>Number of Towns</th>
<th>Contract Expiration</th>
<th>Expected Owner</th>
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<td>13</td>
<td>2008</td>
<td>Wheelabrator</td>
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<td>Wallingford</td>
<td>5</td>
<td>2010</td>
<td>Covanta</td>
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<td>Hartford</td>
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<td>Lisbon</td>
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RRF Revenues

- RRF Revenues based on:
  - Tipping Fees
    - Facility
    - Length of Contract
    - Services provided
  - Energy Sale
Tipping Fees

- Services that tip fees may include
  - Transport
  - Transfer
  - Recycling
  - Administrative Fees
Tipping Fees

- Long-term contracts (over 1 year)
  - Between $60 and $69 for FY 2010
  - Often include put-or-pay provision

- Short-term and spot market
  - Can very day-to-day and seasonally
  - Sometimes as low as $40
Energy Sale

- Energy sale prices were fixed with initial contract
  - Initial prices above wholesale market
    - $.045 per kwh wholesale price (2009 average)
    - RRF price range from $.08 to $.24 per kwh
  - Tip fees likely to reflect decreased energy sale revenue
RRF Ash

- Ash residue is the left-over byproduct of incineration process
  - Consists of fly ash and bottom ash
  - 10% volume of source MSW
  - 20-30% weight of source MSW
Resources Recovery

- CT heavily reliant on RRFs
- Ownership of RRFs is transitioning
- Revenues for RRFs
  - Tipping fees
  - Energy sale
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Landfills in U.S.

- Account for 90% of U.S. MSW disposal
- Cheapest current method of disposal
- Federal requirements for sanitary landfills
Landfills in CT

- Least preferred disposal method
- CT regulations more stringent
- 300+ closed landfills
  - Inconsistent monitoring
CT Landfill Usage

- Few active landfills of any kind in CT
  - ~30 total (mostly Bulky Waste)
  - 1 active MSW landfill with limited capacity
  - 1 active ash landfill

- 25% of disposed MSW sent to landfills
  - Most to out-of-state
Ash Disposal

- 8 states allow ash reuse
  - Use at MSW landfills (cover, bedding)
  - Road sub-base
  - Ingredient in concrete or asphalt

- Residue sent to ash-only landfills in CT
Ash Disposal

- 1 active ash landfill in Connecticut
  - Approximately 17 years of capacity remaining without expansion

- Some ash is sent to out-of-state landfills

- CRRA began work for a new ash landfill, but has since suspended its efforts
Landfills

- Landfills are widely used for MSW disposal in the U.S.
- Connecticut has limited landfill capacity
- Amount of MSW sent to out-of-state landfills is likely to increase
- RRFs have a landfill component
Municipal Solid Waste Services in Connecticut

Public Hearing Today
4:30 pm - LOB Room 2D