

# REPORT OF THE MODERNIZING RECYCLING WORKING GROUP

PRESENTED TO GOVERNOR DANIEL P. MALLOY

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## Recycling 2.0: Better Economics, Better Environment

Submitted by Governor Malloy's Modernizing Recycling Working Group

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- G. Notes of Materials and Markets Subcommittee, July – October 2012
- H. Setting Product Stewardship Priorities for CT, Product Stewardship Institute, November 2012
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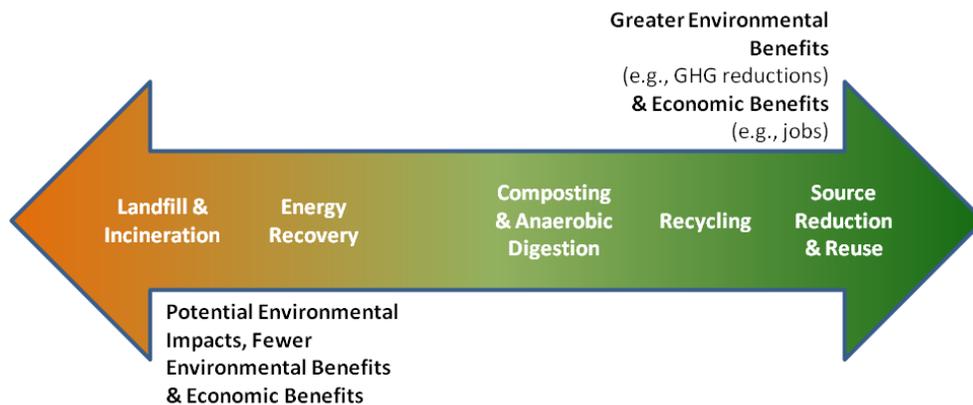
## EXECUTIVE SUMMARY

The Governor's Modernizing Recycling Working Group ("Working Group") was established to modernize the state's solid waste and materials management policies to recover more value from discards and step up our efforts to reduce, reuse, and recycle. The Working Group has developed recommendations for ways that Connecticut can capture the value of these commodities and to promote a stronger waste and materials management system.

Building on Connecticut's leadership role in fostering a unified solid waste management system, dating back almost 40 years, the Working Group seeks to position Connecticut for continued leadership for future generations.

This report re-imagines a further integrated approach to sustainable materials management in Connecticut. To drive environmental and economic benefits today and for the future, Connecticut will:

- Promote an environmentally beneficial infrastructure that balances the need for both stability and responsiveness under market conditions** and includes a diversity of systems and facilities to collect, process, and recover material and energy value, and to support the development of stronger markets for recovered commodities.



- Foster economic development and job creation** through increased materials recovery that make raw materials available to in-state manufacturers.
- Reduce economic, operational, and administrative burdens on municipalities** and individuals by encouraging modernization of pricing systems, data systems, and phasing in the potential for regional services.
- Redefine the role of the Connecticut Resources Recovery Authority (CRRRA) and the role and value of multiple Regional Solid Waste Authorities** in governance, responsibilities, and operations and provide recommendations for improvement.

Connecticut is facing an opportune moment to propose ideas given fluctuations in the economy and our social systems related to financial challenges faced by municipalities, constrained public investment capital, energy issues, and shifting ownership control of waste materials and facilities.

To drive towards a mindset of value extraction from a mindset of waste management, a new paradigm needs to be built into the Connecticut culture. The result will be reduced costs for municipalities and residents and more economic activity based on expanding reuse and recycling sector jobs.

This report provides a broad-ranging list of recommendations. The Working Group believes these recommendations, either individually or collectively, warrant consideration by the Governor, legislature, Connecticut's Department of Energy and Environmental Protection, and/or the state's Solid Waste Management Advisory Committee.

## Vision to Action

### Recycling 2.0: Better Economics, Better Environment

The Working Group supports the long-range vision outlined in Connecticut's Solid Waste Management Plan (2006) which remains relevant in outlining many guiding principles which are the foundation to change the culture of solid waste management in the State. The [Solid Waste Management Plan](#) states that the long-range vision for solid waste management is to:

- Transform our system into one based on resource management through shared responsibility of everyone involved in the life-cycle of products and materials;
- Shift from a "throwaway society" toward one that promotes a reduction in the generation and toxicity of trash, and that treats discards as valuable raw materials, feedstock and energy resources; and
- Manage materials through a more holistic and comprehensive approach, resulting in the conservation of natural resources and the creation of less waste and less pollution, while supplying valuable recovered materials to revitalize economies.



The goal of the Connecticut Department of Energy and Environmental Protection and Governor Malloy's Modernizing Recycling Working Group is to [transform waste management in Connecticut](#) by converting this **vision into action**.

A new paradigm of materials management needs to be built more directly into the Connecticut culture as it was generations ago when we were a thriftier society. The result will be reduced costs for municipalities and residents and more economic activity based on expanding reuse and recycling sector jobs.

Simply put, the more tons of waste diverted from disposal the more economic opportunities that are created. Reshaping our investments and how we maintain Connecticut's infrastructure for reuse and recycling industries means jobs for Connecticut.

The [Connecticut Economic Resource Center](#) has estimated that an additional 755 employees will be required to provide services associated with recycling with increased recovery rates. In Massachusetts, for example, over the next two years, the private sector expects a 15% growth and the public sector expects a 5% growth in recycling jobs. The reuse and remanufacturing sectors expect the highest rate of growth followed by the recycling industries.

Roughly **2,700 jobs** in the recycling supply chain and another **2,100 indirect and induced jobs** currently contribute **\$275 million in payroll** and **\$59 million in tax revenue** to the CT economy.

Source: CT Economic Resource Center, 2012

## Guiding Principles

The guiding principles for the Working Group were to:

### Promote environmentally beneficial infrastructure

- Recommit to the foundational principles of self-sufficiency and reaffirm the solid waste management hierarchy incorporated in the existing State Solid Waste Management Plan.
- Deliver the best environmental outcome.
- Define the state solid waste infrastructure and management system.
- Encourage collaboration both within our state and across the Northeast region.
- Recognize that Connecticut has achieved the elimination of landfilling of municipal solid wastes (e.g., household trash) within its borders, posing unique challenges and opportunities.

### Foster economic development and job creation

- Transform the waste economy in Connecticut.
- View discarded materials as an opportunity, not a challenge.
- Extract all possible economic and energy value from discarded materials.

### Reduce burdens on municipalities

- Deliver reduced costs for municipalities and residents.
- Demonstrate preference for incentives to mandates when it can be shown that incentives can accomplish almost as much as mandates while recognizing mandates promote statewide standardization.
- Recognize that Connecticut is a diverse state and one size does not fit all.

### Refine the role of CRRA

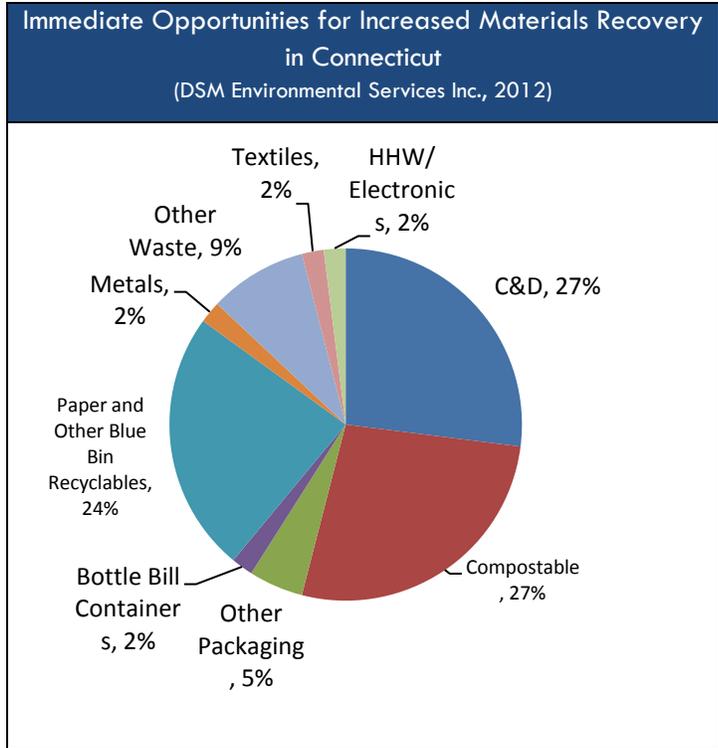
- Examine the governance, responsibilities and operations of CRRA.

**Framework for Action**

This report offers Governor Malloy a vision of an economy that benefits from capturing recyclable materials that are not yet captured. This vision follows a pathway to a sustainable materials management system that recognizes source reduction and reuse as paramount strategies. Included in these recommendations are ideas to support investing in recycling infrastructure, pricing system corrections, phasing in source separated organics recycling, furthering product stewardship systems, and to measure the state's progress in saving money and reducing trash while encouraging local jobs.

Consistent with other policy work in Governor Malloy's administration (e.g., Comprehensive Energy Strategy) these recommendations are meant to lay the groundwork for economic, environmental, and energy sustainability for long-term planning.

Implementing the recommendations will result in development of stronger markets for recycled material, increased recovery, clearer economic pricing signals, and support for strategic investment in a diverse and responsive infrastructure through public and private partnerships.



- Short Term Actionable Items**
- Hold "Recycling Means Business Day" at the Legislature to highlight the economic impact of the reuse and recycling industries.
  - Support product stewardship mattress recycling legislation.
  - DEEP, in conjunction with DECD and CT Innovations, form a recycling market development council.
  - Issue directive to state agencies to "buy better," building on existing preferable procurement practices to stimulate market demand for recycled-content, reusable and recyclable products.
  - Shift to web-based data system.

## Summary of Recommendations

This report includes a comprehensive list of recommendations that the Working Group members felt warrant consideration by the Governor, legislature, Connecticut's Department of Energy and Environmental Protection, and/or the state's Solid Waste Management Advisory Committee.

Below is a summary of key recommendations for Governor Malloy's consideration which are part of a larger list of recommendations discussed in the Findings and Recommendations section.

### Promote environmentally beneficial infrastructure

- Incentivize and/or finance organics composting and/or anaerobic digestion facilities.
- Expand capacity and performance of [construction and demolition](#) (C&D) recycling facilities.
- Clarify reuse and recycling opportunities for difficult waste streams (e.g., issue regulations that streamline beneficial use) as well as repurpose landfills for those materials for which reuse and recycling are not possible.
- Assure the sustainability of the state's waste to energy infrastructure to manage non-recyclable wastes, while continuing to prioritize source reduction, reuse and recycling.

### Foster economic development and job creation

- Promote [Product Stewardship](#) principles to ensure shared responsibility for products throughout their lifecycle.
- Align economic development incentives with opportunities for recycling-based businesses.
- Create a new Infrastructure Development Bank or expand existing funding mechanism (e.g., Clean Energy Finance and Investment Authority) to assist in financing new recovery businesses.
- Improve procurement practices to increase demand for materials – have the state lead by example.

### Reduce burdens on municipalities

- Develop a statewide [recycling education and enforcement](#) campaign.
- Implement transparent pricing/billing for disposal through [unit-based pricing](#) to de-couple solid waste management costs from property taxes and to empower recycling with the rewards of thrifty behavior (saving money) resulting in reduced waste generation by at least 40%.
- Simplify and improve [data reporting requirements](#) to reduce the reporting burden on municipalities and make clear what materials are available for reuse in the marketplace or as feedstock to make a product.

### Refine role of CRRA

- Develop a transition plan with advisory input from affected towns to evaluate the functions of CRRA and manage this changed role, with consideration of the operational requirements of the recycling facilities, regional transfer stations, closed and closing landfills, and other functional roles.

## INTRODUCTION

### Background

In April 2012, [Governor Malloy invited a diverse group of stakeholders](#) to volunteer their experience, expertise, and time to map a path to the future. The Working Group was tasked with submitting recommendations to improve the state's approach to source reduction and recycling, reduce costs, and more efficiently use waste material.

### Process

The Working Group heard from experts and thought leaders from around the country, participated in facilitated dialogues as the larger working group and in subcommittees, listened to members of the public, interviewed stakeholders, and evaluated information about the current state of materials management in Connecticut and assessed how laws constructing the current system in Connecticut have evolved. Two subcommittees were formed to address materials and markets in the reuse and recycling industry and Connecticut's solid waste management system and infrastructure.

To support the Working Group, DSM Environmental Services, Inc. ("DSM") provided information regarding municipal finance in other states and a diagnostic analysis on the current state of solid waste management in Connecticut. They offered their findings and recommendations for consideration by the Working Group (see Appendices).

The Working Group, appointed by Governor Malloy, includes representatives from municipalities, recycling and materials management professionals, and members with finance and environmental management backgrounds.

### Objectives

1. Modernize the state's solid waste and materials management policies to recover more value from discards and step up our efforts to reduce, reuse, and recycle.
2. Ensure we manage non-recycled waste sustainably to protect the environment, achieve economic sustainability, and control energy costs. Currently 92% of Connecticut's solid waste is either recycled or recovered for energy value, though greater energy efficiencies and cost savings can be achieved through increased source reduction and recycling.
3. Establish stable, cost effective funding mechanisms to provide sustainable materials management that encourages collaboration between municipalities, regional authorities, state agencies, and public/private partnerships.

**Subcommittee co-chairs:**

- Richard Barlow, Town of Canton
- Marilyn Cruz-Aponte, City of Hartford
- Adrienne Houel, Greater Bridgeport Community Enterprises
- Cheryl Reedy, Housatonic Resources Recovery Authority

**Members:**

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**ANALYSIS AND RECOMMENDATIONS**

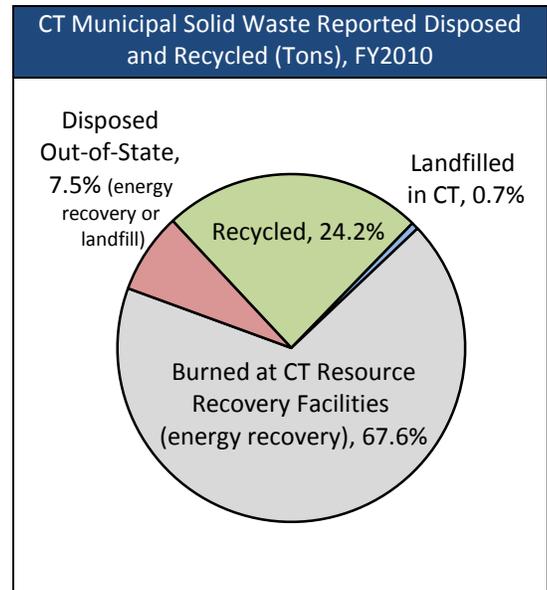
**Current State Analysis**

The Working Group’s recommendations build upon the state’s Solid Waste Management Plan (December 2006), which sets a goal of achieving by 2024 a 58% rate of diversion from disposal (where “disposal” means energy recovery or landfill).

Currently, Connecticut diverts from landfill disposal 92% of the municipal solid waste generated throughout the state. Of this, approximately one-third is recovered for recycling and two-thirds for energy. Connecticut’s trash sent to waste-to-energy facilities is converted to more than one million megawatt hours of electricity, powering more than 100,000 homes every year without the use of fossil fuels.

Over the last four decades, Connecticut has invested in infrastructure that promotes recovery of materials for recycling and energy value. While this overall picture places Connecticut in league with progressive European nations, there is still a significant opportunity to recover thousands of tons of material to be recycled into other products rather than be recovered for energy.

Consequently, the recommendations of the Working Group reflect the state Solid Waste Management Plan’s focus on increasing material recovery through reuse and recycling and managing what currently cannot be recycled largely through capturing the energy value of waste and managing the land disposal



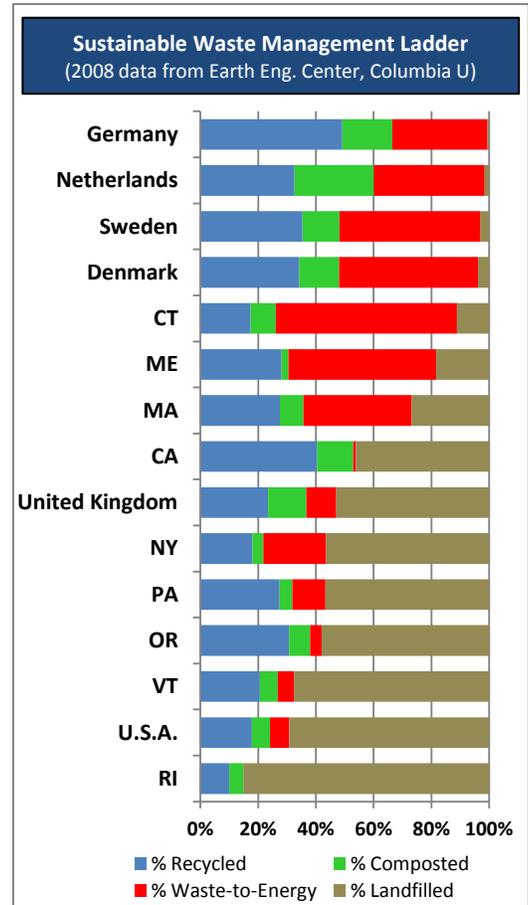
of the smallest percentage of residuals as possible. Over the next decade, Connecticut will strive to expand source reduction, reuse, recycling and composting to mirror Germany and the Netherlands' profile (see Sustainable Waste Management Ladder chart).

### Opportunities and Challenges

Connecticut faces a mixture of opportunities and challenges. Now is the opportune moment for Connecticut to propose ideas given the fluctuations in the economy and to our social systems related to financial challenges faced by municipalities, constrained public investment capital, energy issues, and shifting ownership control of waste materials and facilities.

Three issues will require near-term attention of municipalities, regions, the state, and leaders:

- 1. Low and declining natural gas pricing is driving electricity prices down.** While this is a benefit to Connecticut's citizens overall, this is a concern for the economic sustainability of waste-to-energy facilities and therefore Connecticut's solid waste management system. This is because currently as much as 40% of revenues for Connecticut's resource recovery (waste-to-energy) facilities are drawn from electricity generation.
- 2. Above-market electricity prices in long-term power purchase agreements that Connecticut's resource recovery facilities relied on are expiring.** Three of these power purchase agreements expired between 2008 and 2012. Three additional agreements will expire between 2014 and 2021. This means half of Connecticut's resource recovery facilities are now selling electricity at these newer relatively low market rates. While these lower revenue rates have not greatly affected tipping fees (the other revenue source for the facilities) to date, this situation could eventually affect tipping fees for the waste-to-energy facilities in Connecticut and in the Northeast region if alternative revenues cannot be generated or if waste-to-energy operational expenses cannot be reduced.
- 3. The continued role of municipal responsibility for solid waste management and the continued widespread practice of relying on property taxes to cover those costs means that there is a growing need for municipalities to take action to reduce costs.** If higher tipping fees result from waste-to-energy facilities needing to compensate for reduced electricity revenue, then municipalities will be particularly affected. Municipalities must act to increase source reduction, reuse and recycling to reduce the amount of materials sent to waste-to-energy facilities or landfills for disposal. The Working Group acknowledges another less desirable option is for municipalities to abandon the infrastructure stability of self-sufficiency and find



disposal capacity in out-of-state landfills, though this will create uncertainty in future pricing and availability of in-state waste-to-energy facilities to municipal leaders.

As part of the discussion of the opportunities and challenges, and as part of defining a vision for Connecticut, the Working Group considered a few key questions and topics.

**State solid waste self-sufficiency as a public policy goal**

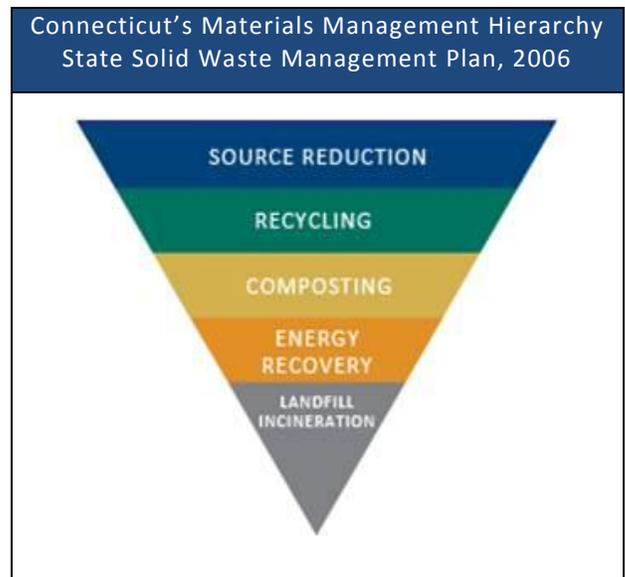
The Working Group considered the value of maintaining the public policy goal of achieving self-sufficiency as a state to Connecticut's infrastructure investments. It is necessary to work collaboratively in the inter-connected Northeast region to advance an infrastructure capable of meeting the needs of Connecticut and the region.

The Working Group discussed the risks of not being self-sufficient, such as the loss of control and access to facilities, transportation costs, legal and financial liability, environmental impacts, changes in law in other locations that could alter access to distant facilities, increases in other state's assessment fees, and consistency with Connecticut's own policies. The Working Group discussed the challenges of achieving self-sufficiency in practice. Specifically, the cost competitiveness from out-of-state facilities and the difficulty in siting facilities designed to close infrastructure gaps are challenging because of local opposition, environmental justice considerations, and remoteness from other related facilities.

The Working Group acknowledged that *interstate regional solutions* for managing some special wastes may be a preferred option. The Working Group more generally identified the importance of working on a multi-state regional level both to plan for harmonized approaches and timing for improving materials management, such as product stewardship, and to build infrastructure capacity for recycling a range of materials. Connecticut is part of a regional marketplace and in practice will continue to rely on regional infrastructure for certain types of facilities, but the Working Group agreed that this is not an excuse to delay action indefinitely while waiting for other states to act.

**Affirmation of the materials management hierarchy**

The Working Group affirmed the materials management hierarchy articulated by both United States Environmental Protection Agency and Connecticut state law. The group reinforced the order of priority for managing materials specified in state law and in the state Solid Waste Management Plan. Specifically, the Working Group identified source reduction, reuse, recycling, and composting as the foremost methods for solid waste management in Connecticut, with energy recovery at waste-to-energy facilities preferred over incineration without energy recovery or landfilling. By following the [hierarchy](#), Connecticut ensures that economic decisions regarding materials management are environmentally sound as well. The Working Group's recommendations reflect a commitment to the materials management hierarchy.



### **Advancing progress towards zero waste**

The Working Group envisions a path *towards* [zero waste](#). The zero waste approach seeks to maximize recycling, minimize waste, reduce consumption and ensures that products are made to be more durable, reused, repaired or recycled in lieu of being burned or buried in a landfill. The principle of zero waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use.

### **System fragmentation**

System fragmentation in collection services and location of consolidation and processing facilities creates system inefficiencies. There are opportunities for cost savings and efficiencies that could be realized by addressing this fragmentation. The analysis that DSM Environmental Services, Inc. provided to the Working Group found that collection is currently the highest cost element in solid waste management. Therefore, addressing collection costs through less fragmented and more cost-effective practices means that financial resources could be made available for addressing currently unmet system needs.

### **Regional authorities, CRRA, and integrated planning**

While Connecticut enjoys a strong tradition of municipal control, including in the area of solid waste management, the Working Group considered the functional roles of state government and of regional authorities, as well as the role of the Connecticut Resources Recovery Authority ("CRRA") recognizing the diversity of municipal needs in the state. While Connecticut has a range of regional solid waste authorities working on behalf of groups of municipalities, the majority of municipalities act individually rather than collectively when purchasing solid waste management services (e.g., collection, processing, energy recovery, land disposal).

Given the evolution of the waste management system in Connecticut since the 1970s, the Working Group concluded that it does not seem as relevant for CRRA to have a statewide role, at least in the areas of bonding, education, and development. It would be appropriate to manage this transition with advisory input from towns affected by the changes. A transition plan is needed to manage any changed role, with time and consideration given to address the operational requirements of the regional recycling facilities, regional transfer stations, closed and closing landfills, and other functional roles.

### **Metrics**

How should we measure progress in Connecticut?

Recommended metrics:

- Statewide recycling rate (municipal solid waste) possibly including additional materials not currently comprehensively reported (e.g., textiles, scrap metal from non-reporting facilities).
- Tonnage of common recyclables each municipality recovers
- Improved reporting of uncommon recyclables.
- The composition of our trash (MSW and C&D materials *not* recycled)
- Pounds per person per year statewide disposed (sent to energy recovery facilities or landfills) rather than reused or recycled

- Identified target pounds per person per year residential municipal solid waste (e.g., 600 pounds per person per year).

## Values Informing Guiding Principles

The Working Group identified the values associated with the principles guiding their work and recommendations. Specifically, they identified the following:

### Environmental

- Preserve natural resources and conserve water.
- Reduce polluting emissions to land, water and air.
- Reduce greenhouse gas emissions and energy use.
- Continue decreasing reliance on landfills.
- Minimize disposal of challenging waste material.

### Energy

- Increase recycling since recycled materials require less energy than virgin materials.
- Reduce dependence on fossil fuels by supporting and re-investing in energy producing recovery methods such as waste-to-energy and anaerobic digestion, but only after ensuring that all economically recyclable materials have been recovered.

### Economic

- Reduce costs to local governments while maintaining economic incentives to source reduce and recycle in lieu of disposal.
- Provide property tax relief by decoupling some or all of municipal waste management costs from property taxes.
- Recognize the economic impact of turning industrial waste into industrial feedstock.
- Create jobs through materials management.

### Equity and access

- Provide equity to successful household recyclers by pricing trash services by the unit rather than as flat fees. This means that people who do a good job recycling pay less for trash, rather than subsidizing others who are not recycling as well, just as people pay less on an electric bill when less electricity is used.
- Ensure facilities are optimally sited to guarantee equal opportunity in recycling.
- Promote environmental justice.

### Sustainability

- Affirm local control over appropriate elements while phasing in a regional system by 2020 to achieve savings from economy of scale.
- Maintain current infrastructure while encouraging new infrastructure and including diverse types of facilities.

## Findings and Recommendations

The Working Group developed a comprehensive list of recommendations that either individually or collectively Working Group members felt warrant consideration by the Governor, legislature, Connecticut's Department of Energy and Environmental Protection, and/or the state's Solid Waste Management Advisory Committee. The following list of recommendations is grouped into four areas.

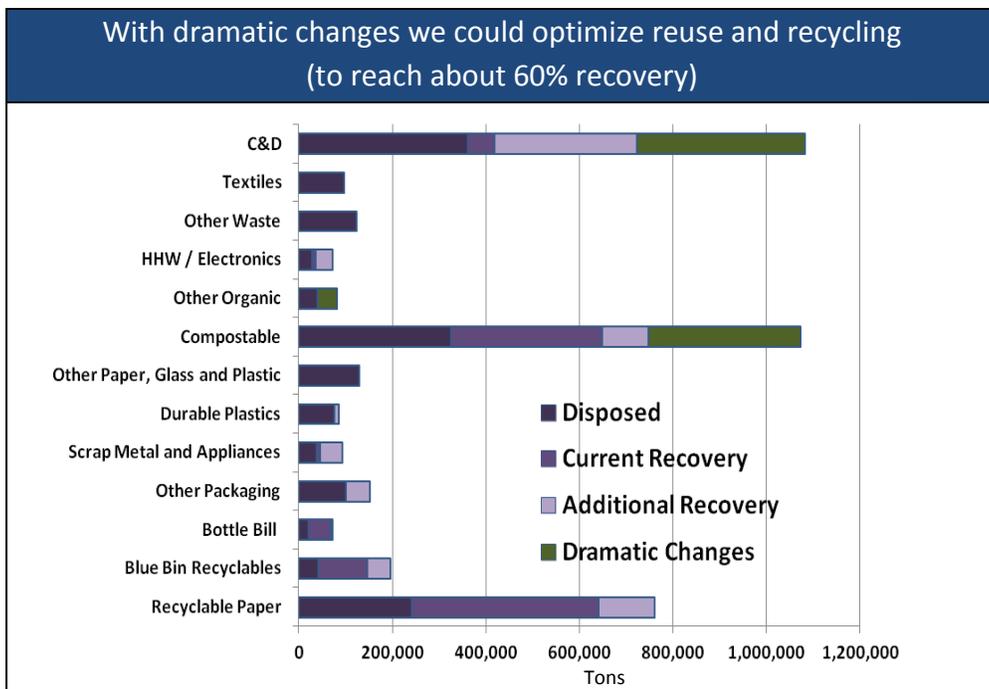
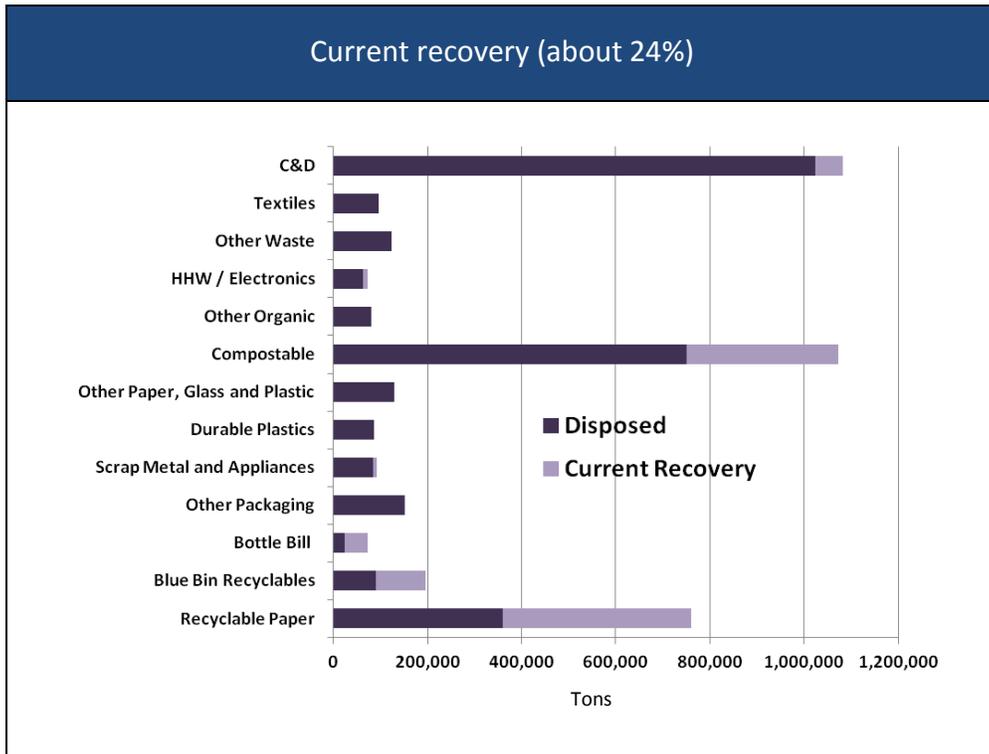
### 1. Promote an environmentally beneficial infrastructure that balances the need for both stability and responsiveness under market conditions

Connecticut is a leader today in part due to decisions about system architecture made as long as 40 years ago and as recently as the present, specifically decisions that resulted in:

- Development of regional recyclables processing facilities;
- Development of sufficient waste-to-energy facility capacity to be self-sufficient in handling non-recyclable wastes;
- Creation of CRRRA with ability to borrow at low cost with implicit state guarantee;
- Flow control through contracts that assured predictable flow;
- Implementation of managed energy rates to keep tipping fees competitive;
- Transfer of future ownership of most waste-to-energy facilities to private companies to reduce public borrowing costs (except Mid-Conn and Eastern Connecticut Resource Recovery Authority in Lisbon);
- Mandatory recycling of designated recyclable items once regional processing capacity is in place;
- Mandatory recycling of commercial source-separated organics (including food wastes) once sufficient recycling capacity is in place;
- Equitable, parallel collection for recyclables and trash;
  - Recyclables collection containers must exist in public venues where recyclable discards are generated;
  - Where a contract is in place for trash collection, a contract also needs to be in place for recyclables collection;
- Product stewardship laws for electronics recycling, paint recycling, plans for additional; and
- Beneficial use determination laws and processes to ensure materials can be treated as commodities.

However, to maintain this leadership over the next 40 years, Connecticut will need to immediately address gaps in infrastructure to manage increases in diversion of construction and demolition (C&D) waste and organics, as well as other materials. DSM looked at what materials are still in the trash after recycling, and based on their experience, estimated tonnage of materials that could be recovered. With dramatic changes the state could optimize source reduction, reuse, and recycling to

achieve all possible economic and environmental benefits and get to significant increased materials recovery.



In order to reach diversion goals, Connecticut will need to double or triple existing capacity to manage organics and C&D waste. This must be done by attracting and leveraging private capital to construct key pieces of infrastructure such as C&D recycling facilities, composting facilities and anaerobic digesters.

*Promote an environmentally beneficial infrastructure that balances the need for both stability and responsiveness under market conditions*

## **RECOMMENDATIONS**

### **Expand capacity and performance of construction and demolition facilities**

Description:

- Expand the capacity of and improve performance standards for construction and demolition (C&D) facilities, principally through private facilities that recover materials for reuse and recycling to significantly increase diversion.
- Evaluate ways for the state to aid in the implementation of C&D recycling.

Options:

- Improve performance standards.
- Expand capacity of existing facilities.
- Expand facility hours of operation (within local zoning requirements).
- Develop new facilities.

### **Regionalize construction and demolition (C&D) infrastructure development**

Description:

- Consider regional collection of recyclable materials found in the C&D materials to build capacity for C&D reuse and recycling.

Options:

- Examine existing permitted solid waste facilities, including capped landfills, and share these sites for cooperative collection and aggregation of C&D recyclables and materials for reuse.
- Create partnerships that make sense geographically for collection sites; sharing containers to collect source separated materials such as gypsum wallboard, clean wood, residential roofing shingles.
- Open regional collection sites to small and large contractors and do-it-yourself home owners. Annual fees plus tip fees by volume would be charged, but less than current mixed C&D tip fee rates.
- Need to integrate source separated collection ideas with Volume Reduction Facilities (VRFs) that currently process C&D materials. Need to work with them to keep integrity/value of materials source separated and promote which VRFs currently recycle, their recycling rate and those that only dispose of mixed C&D in landfills.

- Municipal transfer stations and regional collection sites should develop swap shops that accept reusable building materials; redistributing via the swap shop to residents and/or partnering with local building material reuse centers.
- Provide structure and/or support for municipal transfer stations that want to provide direct marketing of materials with a hub/spoke system for source separated materials.

### **Incentivize and/or finance organics composting and/or anaerobic digestion (AD) facilities**

#### **Description:**

- Increase the number of organics composting and/or AD facilities to significantly increase diversion of organic materials.

#### **Options:**

- Use Clean Energy Finance and Investment Authority (CEFIA) funding, customize permits, and clarify definitions to simplify and streamline permitting process for this Class I Renewable Energy source.
- Evaluate ways for the state to aid in the implementation of food waste composting.
- Provide seed money or start-up funds (loans, grants/tax abatements) to build organic recycling/composting and/or AD facilities.
- Simplify permit requirements and reduce permit fee to encourage and expand farm composting to allow for more source separated food scraps/residuals at such locations. Develop streamlined permit for composting operations at non-farm facilities.

### **Implement separation of residential organic waste**

#### **Description:**

- When viable and sustainable organics recycling infrastructure is developed, affordable residential composting diversion goals will be established with municipal and regional cooperation.

#### **Options:**

- Reduce overlapping collection routes for trash and recyclables and use the systematic efficiency realized from reduced collection costs to invest in collection of organics. Identify organics as a designated recyclable item (mandatory recyclable) upon establishment of cost-effective collection capability.

### **Update solid waste assessment**

#### **Description:**

- Update solid waste assessment fee applied to all non-recycled municipal solid waste (MSW) effective July 1, 2013 unless the state meets a certain pounds per person disposal rate. This includes MSW transferred for energy recovery at out-of-state waste to energy facilities or MSW disposed at land disposal facilities.
- Recommend mandating reuse and recycling of C&D materials.

Options:

- Expand fee to level playing field across industry.
- Remove fee entirely.

**Create new Infrastructure Development Bank or expand existing funding mechanism such as the Clean Energy Investment and Finance Authority (CEFIA) to assist in financing new recycling businesses**

Description:

- An infrastructure development bank should be created (or expanded) to leverage private financing of materials recovery and energy recovery facilities while creating jobs.

Options:

- Establish new funding bank focused only on materials management.
- Merge with or expand existing bank (e.g., CEFIA) to include materials management investment.
- State investment through a self-perpetuating revolving loan fund.

**Address difficult waste streams and repurpose closed landfills**

Description:

- Advance self-sufficiency goals by improving management of difficult to manage solid wastes, thereby reducing greenhouse gas emissions from reduced transportation distances.

Options:

- Develop beneficial use regulations to clarify and promote opportunities for reuse and recycling of certain materials rather than as disposed solid waste.
- Consider re-purposing one or more closed or closing landfills to provide capacity for difficult to manage wastes, including ash residue, that cannot be reused or recycled.
- Create new ash residue landfill.

**Evaluate bottle bill**

Description:

- Consider changes to the bottle bill. The Connecticut Bottle Bill (also known the container deposit law) was enacted in April 1978 and implemented in January of 1980. Originally created to reduce litter, it also provides a system to capture beverage bottles and cans for recycling. In Connecticut, the refund deposit is 5 cents. It is estimated that 56-70% of redeemable containers are recovered (lower end represents when water bottles were added; it takes a few years for public awareness to catch up with legislative changes). This is compared to our overall recycling rate of 24%.
- Need to better understand the costs and benefits for keeping versus eliminating and/or expanding/revising the bottle bill.

Options:

- Expand bottle bill to all beverage containers.
- Increase deposit from \$0.05 per container to \$0.10.

- Expand to all glass containers (to reduce presence of glass in single stream collection containers and thus enable cleaner single stream materials for marketing).
- Remove bottle bill and replace with broader (e.g., packaging) producer responsibility measures.

### **Provide greater processing flexibility for municipal transfer stations**

#### Description:

- Provide greater processing flexibility for municipal transfer stations to maximize the value of incoming materials for reuse and recycling and possible revenue streams.

#### Options:

- Allow for more processing, such as crushing glass into aggregate or stripping wires from appliances, and other minimal processing of materials at municipal transfer stations, which create better efficiencies and allow greater revenue rates.
- Provide structure and/or support for municipal transfer stations to increase value and marketability of materials for direct marketing.
- Provide training and assistance to municipalities and businesses interested in direct marketing.
- Municipalities interested in direct marketing could be first step towards creating a hub and spoke system for source separated materials.
- Underutilized facilities currently permitted for solid waste activities should be considered as possible hubs for shared direct marketing opportunities.

### **Assure the sustainability of the state's waste to energy infrastructure to manage non-recyclable wastes, while continuing to prioritize source reduction, reuse and recycling**

#### Description:

- Evaluate long-term business viability and sustainability for waste to energy.

#### Options:

- Develop bi-lateral electricity/waste contracting for municipalities.
- Create other options to support electricity rates contracts for waste to energy facilities.
- Increase percentage of Class II Renewable Energy Credits (RECs) in the State's Renewable Portfolio Standards.
- Change waste to energy to Class I REC.

## 2. Foster economic development and job creation

Materials that are currently recycled or reused represent the “unlocked” portion of Connecticut’s waste stream. These materials, which include both designated (mandated) recyclables (e.g., bottle, cans, paper, cardboard, etc.) and non-mandated materials (e.g., mattresses, clean wood, gypsum wallboard, asphalt shingles, brick, concrete and asphalt), are processed into feedstock to be used by others in the production of new items. There is a significant volume of valuable designated recyclables and other recyclable materials that are not yet recovered from Connecticut’s waste stream. There is a considerable opportunity to “unlock” the materials economy by better capturing such materials.

CT industries reliant on recovered feedstock (paper, wood, glass, plastics) may be responsible for another **5,100 direct jobs** and **6,600 indirect and induced jobs**.

Source: DSM Environmental Services Inc., 2012

The materials which are still “locked” can be found in the residential, commercial, institutional and industrial waste streams. Different categories of materials, such as organics, glass, plastic, construction and demolition (C&D) and fiber, all provide different challenges and opportunities. C&D debris and organic residuals provide the greatest opportunities for increased recovery, processing and product development.

DSM Environmental Services, Inc. and the Connecticut Economic Resource Center (CERC) both reported on the current understanding of certain aspects of the recycling industry in Connecticut. CERC found that recycling collection, processing and wholesaling operations in Connecticut directly employ 3,000 people with a payroll of over \$130 million. Additional employment, payroll and contributions can also be added from a wide range of recycling-reliant industries. With increased recycling rates, Connecticut will need an additional 755 employees to provide services associated with recycling. As a point of comparison, a growth of 15% in the private sector and 5% in the public sector in recycling jobs is expected in Massachusetts over the next two years.

### Jobs through recycling

	Employment (jobs)	Payroll (\$1,000's)	Business Taxes (\$1,000's)
<b>Direct Impacts</b>			
Collection	1,268	\$54,892	
Processing/Wholesaling	1,429	\$67,998	
Composting	257	\$9,658	
<b>Subtotal, Direct:</b>	<b>2,955</b>	<b>\$132,548</b>	<b>\$43,380</b>
<b>Indirect Impacts</b>	<b>796</b>	<b>\$44,300</b>	<b>\$4,950</b>
<b>Induced Impacts</b>	<b>1,372</b>	<b>\$61,800</b>	<b>\$12,110</b>
<b>Total Direct, Indirect and Induced Impacts:</b>	<b>5,122</b>	<b>\$238,648</b>	<b>\$60,440</b>

Source: DSM modeling of collection jobs based on 2010 and 2011 tonnages and 2010 County Business Patterns

Connecticut should increase the use of locally-processed feedstock in current manufacturing practices and new product development. Better knowledge of industry's need and willingness to use recycled materials as feedstock in manufacturing is required. In addition, aspects of how reuse, repair and remanufacturing (i.e., the reuse sector) fit within our expanding materials economy in Connecticut have not been fully examined.

What are the geographic boundaries of Connecticut's "local" materials economy? The Working Group determined we should consider markets and material flows within a 100 mile radius, which roughly comprises the entire northeast (New Jersey, New York, and New England).

In order to create strong local markets, it is important to recognize the need to work regionally, to develop the scale and infrastructure that supports the markets. Other states in the northeast region are also examining and strengthening their reuse and recycling sectors. Connecticut should be examining its resources and package them to attract and retain businesses in these sectors.

### *Foster economic development and job creation*

## **RECOMMENDATIONS**

### **Align economic development incentives**

#### Description:

- Provide reuse and recycling industries support/incentives to strengthen, grow and expand in Connecticut.
- Identify industry-based knowledge organization to ensure that incentives are available to attract, retain, and develop recycling dependent businesses and jobs.

#### Options:

- DEEP in conjunction with Department of Economic Development (DECD) and Connecticut Innovations (CI) convene a conversation with key reuse and recycling industry folks to inform them of specific needs to these sectors.
- DECD and CI to develop package for resources and programs for the reuse and recycling industries.

### **Improve procurement practices to increase demand for materials – have the state lead by example**

#### Description:

- Expand on existing requirements for state agencies to incorporate recycled-content materials into procurement practices, working with the agencies and outside expertise (e.g., federal environmentally preferable procurement guidelines) to develop best practices.

#### Options:

- Set statewide spending goal for products with recycled-content material.
- Develop recycling portfolio standards for key procurement efforts across government.
- Add reuse/remanufactured goods (e.g., car engines, retreaded tires, etc.) to state contracts.

## Form recycling market development council or similar group led by industry

### Description:

- In recognition of the importance of reuse and remanufacturing sectors within the materials economy, form a recycling market development advisory council, led by the reuse and recycling industry group(s), which will address the following ideas:
  - Work with DEEP, Department of Community and Economic Development, and Connecticut Innovations to help reuse and recycling businesses to build capacity within their leadership.
  - Work with a regional entity, such as the Northeast Recycling Council (NERC), on market development for reuse and recycling industries to ensure work on regional level continues; stay connected to other states in region working on these issues.
  - Reinstate manufacturing machinery and equipment exemptions which help recycling businesses.
  - Do not lose sight of importance of reuse and remanufacturing sectors within the materials economy.
  - Work on market development of plastics such as #3-#7, plastic film, rigid plastics. Consider legislation to mandate once strong market in place.
    - Create incentives to clean up incoming mixed recyclables, such as tax incentives for capital investments (update equipment for better sorting).
  - Standardize recycling collection guidelines across the state to help support market development and make it easier for residents to recycle across town lines. All municipalities should update their ordinances to reflect current state-level recycling mandates and bans.
  - Evaluate potential for grocery stores to increase collection of plastic bags and other plastic film.

### Options:

- Convene experts from industry, DECD, CI, NERC, UCONN (including the UCONN Institute of Materials Science) that can help create this recycling market development council.
- Work with NERC to help facilitate support for the regional aspect and interactions of Connecticut's recycling market development council.

## Conduct a Recycling Economic Information study to quantify industry value to Connecticut's economy

### Description:

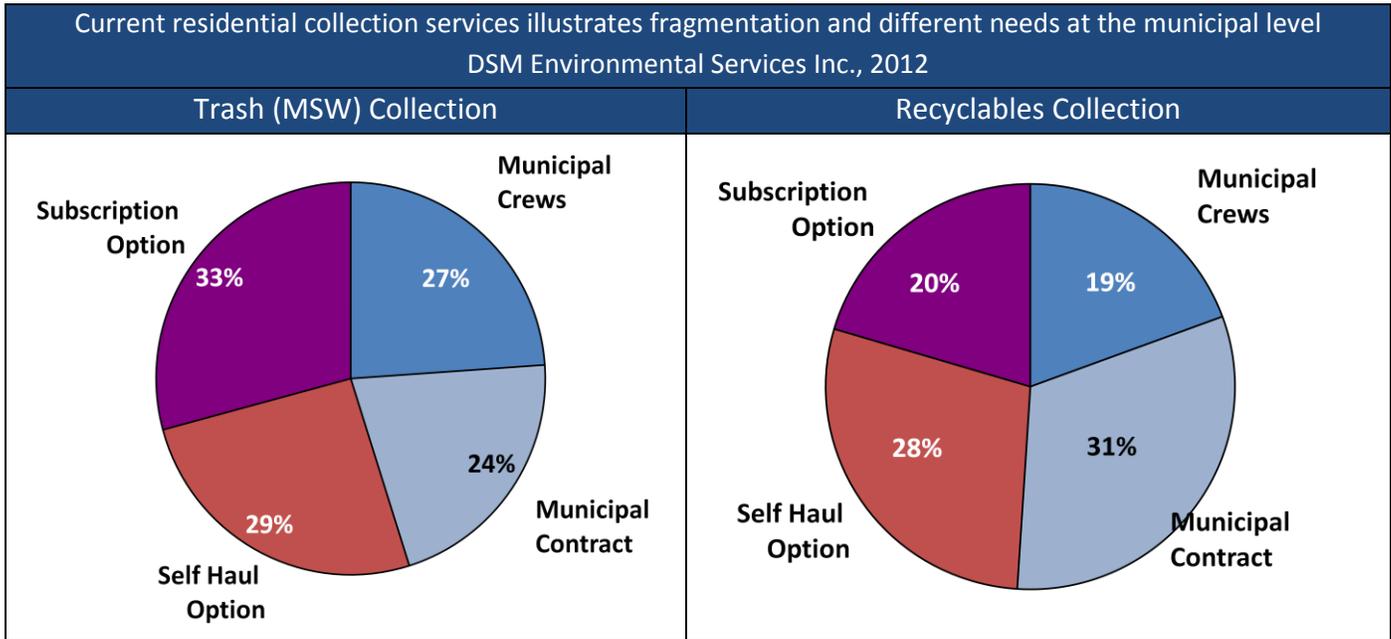
- A Recycling Economic Information (REI) Study identifies and quantifies recycling and recycling-based industries including re-use, repair, re-manufacturing industries, and quantifies the value of such industries to the economy.

Options:

- Determine funding source and conduct an REI Study to identify and quantify recycling and recycling-based industries in Connecticut, including re-use, repair, re-manufacturing industries, and quantify the value of such industries to the Connecticut economy.

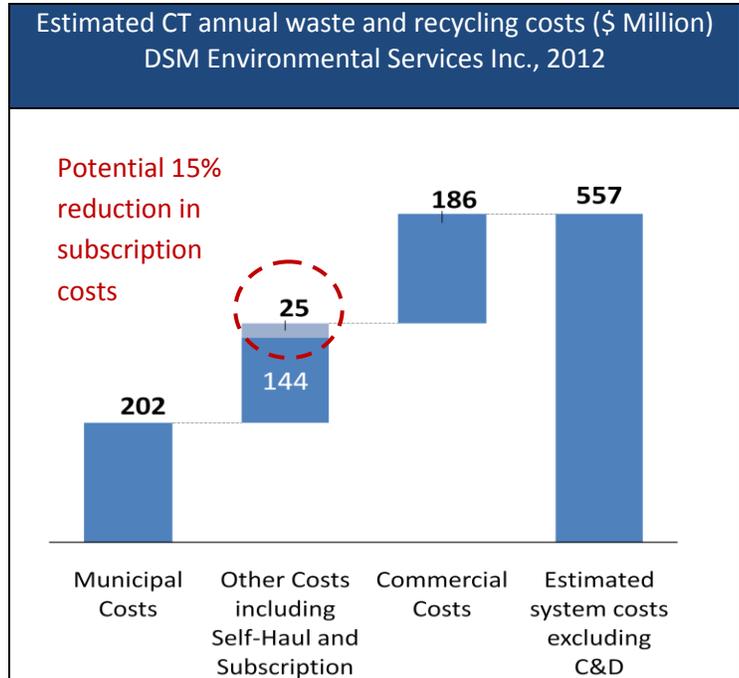
**3. Reduce economic, operational, and administrative burdens on municipalities**

Connecticut municipalities are required by statute to make provisions for all solid waste generated within their borders. Municipalities face increasing costs of solid waste collection and management which reflects fragmentation and duplication within the state's materials management system. Collection and transfer costs account for between 60% and 70% of the total system costs and are higher than they need to be. Currently, municipalities have control over solid waste management, however this results in a loss of economic scale.



Only about 50% of households are served by municipal or municipally contracted collectors. Roughly 30% of Connecticut households individually purchase private subscription collection which means multiple haulers are travelling the same routes. Adding to duplication and inefficiency, the state is served by a large number of solid waste collectors, among whose responsibilities include compliance with Connecticut's mandatory recycling laws and equitable, parallel collection [requirements](#). Subscription service and self-haul options represent more than half of the state and are often more costly than municipal operating systems. Many municipalities prefer to provide residents with local drop-off options, despite perceived duplication of services provided by over 150 publicly and privately run transfer stations operated in the state.

Approximately 70% of municipalities use property taxes to pay for solid waste management which hides the actual costs of trash and prevents individuals from controlling their disposal costs by maximizing their recycling activities. The lack of economic signals to incentivize source reduction and recycling results in subsidizing disposal costs through the tax base. In particular, commercial businesses often subsidize residential disposal and collection costs through their property taxes resulting in further lack of transparency for municipal costs.



Significant data gaps and quality concerns prevent complete materials flow analysis and hinder capacity planning and market development. The data that is available shows that over 50% of the municipal waste stream contains valuable materials, per the State's [Solid Waste Composition and Characterization Study \(2009\)](#). Some financially-strapped municipalities are not utilizing viable solutions for reducing costs through improved materials recovery.

[Recycling education and enforcement](#) funds are almost non-existent at municipal and state levels. However, it is possible that the extent of funds needed for education is not as great as once thought. This is because the list of recyclable items designated for mandatory recycling has grown and harmonized across the state, and collecting recyclables has become more available and convenient.

The Working Group recommends that to reduce the economic and operational burdens from municipalities, Connecticut needs to shift the responsibility for the costs of solid waste management to generators/consumers and manufacturers using incentives, economic signals, and behavior change. Through state-wide [Product Stewardship](#) policies, municipalities are relieved of disposal costs for hard to manage materials such as electronics and paint. This approach equitably shares the cost of proper recycling and disposal with manufacturers.

By implementing [unit-based pricing](#), the state can decouple payment of waste and recycling costs from property taxes. This shifts solid waste funding from property taxes to user fees, relieving municipal budgets, and also provides the financial incentive for residents to reduce trash and increase recycling. Unit-based pricing is a transparent and equitable accounting practice which allows households to control solid waste costs and be rewarded for thrifty behavior, just as they are rewarded by lower

electric bills when less electricity is used. Both recommendations, when implemented, result in increased volume of materials captured as valuable commodities.

Implementing unit-based pricing in the current home-rule environment requires strong local leadership to rise above perceived political challenges to implement a more effective, sustainable and cost efficient system.

The Working Group recommends that a regional solid waste management option be developed to create collaboration and standardized systems to achieve economies of scale to address reducing costs for municipalities, increasing collection efficiencies, and incorporating economic signals. To reflect the diversity of municipal needs in the state, municipalities may opt-out of a regional option to cooperatively and directly market materials. The state can also reduce statewide costs and increase collection efficiency through hauler registration at the state level rather than at the municipal level.

Organizing collection and routes could reduce costs by roughly \$25 million state-wide because of inefficiencies created from subscription services provided by multiple haulers to about 30% of Connecticut households.  
 Source: DSM Environmental Services Inc., 2012

The Working Group recommended that data reporting be simplified and expanded and be moved to a web-based system. Such changes could make data available to businesses interested in knowing the location and volumes of materials moving through the collection and processing system. While the Working Group recognizes the slight shift in burden to currently non-reporting entities and poorly reporting permitted facilities to properly report data, the administrative burden on municipalities could then be minimized or eliminated.

*Reduce economic, operational, and administrative burdens on municipalities*

**RECOMMENDATIONS**

**Promote Product Stewardship**

Description:

- Continue to promote product stewardship principles and practices that create opportunities for development of infrastructure and jobs, starting with the top five priority materials determined by the Product Stewardship stakeholder group.

Options:

- Support the following priority product stewardship materials per the [Product Stewardship Institute 2012 stakeholder session](#) (in this order of priority):

- Mattresses
- Carpet
- Batteries
- Fertilizers and Pesticides
- Packaging

### Implement unit-based pricing

#### Description:

- Implement transparent pricing/billing for disposal through [unit-based pricing](#) to decouple solid waste management costs from property taxes and to empower recycling with the rewards of thrifty behavior (saving money) resulting in reduced waste generation by at least 40%.

#### Options:

- Incentivize unit-based pricing from 2013-2015 and mandate by 2017.
- Beginning in 2013 and continuing for a two-year term, DEEP should provide technical (and financial) assistance in implementation of unit-based pricing.
- Towns not using unit-based pricing or meeting 58% diversion by 2017 (or not meeting certain threshold for pounds per person disposal) may be subject to an increased/additional Solid Waste Assessment.
- Pilot unit-based pricing in five volunteer municipalities representing Connecticut's diversity in 2013-14 and then roll out incentives and assistance statewide.
- Municipalities should create a dedicated enterprise fund to handle materials management-related finances. This fund can assist in providing carts and containers for all communities to implement unit-based pricing programs.

### Register collectors at regional or state level

#### Description:

- Register collectors at a state or regional level rather than municipal level. Clarification of the definition of who qualifies as a “collector” is needed.

#### Options:

- One potential option is for the Department of Motor Vehicles to act as state licensing agent and use special license plates.

### Simplify and improve data reporting requirements

#### Description:

- Simplify and improve reporting requirements to make clear what materials are available to the marketplace.

#### Options:

- Move to web-based reporting system by December 31, 2013.
- Eliminate current annual municipal reporting.

- Require permitted MSW and recyclables processing facilities to electronically report monthly to DEEP by the 10th of the month.
- Make data available in real time to the public.
- As staffing resources become freed up with the conversion to a web-based reporting system, reallocate resources to focus on enforcement.

### Save money through more efficient collection

#### Description:

- Trash and recyclables collection should be more efficient for municipalities where multiple haulers service the same residential areas. Trash and organics recyclables collection should be organized based on regional and/or geographical efficiencies that lower collection costs and maintain flexibility in collection.

#### Options:

- Incentivize cooperation.
- Consider franchising for collection of new curbside materials such as organics.
- Reward municipalities that have implemented unit-based pricing through regional franchising.

### Develop statewide recycling education and enforcement campaign

#### Description:

- Provide funding for DEEP to develop statewide recycling education and enforcement campaign to increase awareness and incentivize compliance. Emphasis on a new paradigm of materials management needs to be built more directly into Connecticut culture.

#### Options:

- Provide funding for DEEP to develop and conduct a state-wide recycling education and awareness campaign. Develop a slogan or gimmick that can be carried forward locally (e.g., State of Kansas' campaign "Get Caught Recycling!" then local communities had local personalities 'getting caught' recycling).
- Provide funding for DEEP to develop/provide educational and outreach resources; specifically tools and templates, which all municipalities can adapt for their local outreach and educational programs (e.g., magnets, Public Service Announcements, videos, flyers, brochures, etc.).
- Provide professional development for the solid waste community, including solid waste operators, haulers, recycling coordinator, Department of Public Works directors and volunteer committees (see section on Reinvigorate Solid Waste Advisory Committee below for more details).
- Create regional recycling coordinators, under the supervision of DEEP but working regionally, like in Massachusetts.
- Provide funding to DEEP to provide more recycling enforcement assistance to municipalities.
- Create incentives to increase active and successful recycling programs for large scale residential and business/commercial properties.

- Focus compliance enforcement on commercial/business and large-scale residential recycling activities.
- Provide municipalities assistance to update municipal codes/ordinances and review language/process of local enforcement.
- Track how many enforcement actions are issued in each community for waste, recycling and litter issues.
- Work with industry groups and fund in partnership with producer responsibility groups.
- Develop recycling education curriculum with the Connecticut Department of Education.

### Re-integrate state, regional, and municipal planning

#### Description:

- Re-integrate state, regional, and municipal planning. Better coordinate solid waste and recycling programs to reduce costs and increase effectiveness for municipalities and regions.

#### Options:

- Phase in regional collaboration. The Working Group recommends offering municipalities a regional solid waste management option by encouraging municipalities to form and join standardized regional solid waste management authorities no later than 2020. It is important to understand that by regionalizing solid waste management, the state can achieve economies of scale and other efficiencies.
- Use existing regional entities and rationalize legal framework.
- Create new county or geographic region framework.

### Reinvigorate Solid Waste Management Advisory Committee (SWAC)

#### Description:

- In December 2006, the Department of Environmental Protection adopted the State Solid Waste Management Plan, Amended 2006. Critical to the successful implementation of the Plan was the creation of a State Solid Waste Management Advisory Committee, created to assist the Department to implement the plan, identify emerging issues and solutions and participating in any revisions to the Plan as necessary.
- SWAC is also forum for municipalities and other stakeholders to connect with DEEP. SWAC provides learning opportunities for the materials management community to better understand materials management issues and hear of best management practices.
- Reinvigorate SWAC with steering committee comprised of representatives from regional organizations and municipal organizations such as Connecticut Conference of Municipalities and Connecticut Council of Small Towns. Convene several SWAC subcommittees and meet with greater frequency.

#### Options:

- Focus areas for new subcommittees:
  - Manufacturers and state officials need to look at how we collect information on industrial wastes and its possible uses.

- Review/revise current definitions and clarify how “waste” is viewed (i.e., when is waste not waste, when is beneficial use equal to reuse or recycling (e.g., glass for alternative daily cover), etc.).
- Facilitate discussion amongst different sectors of the solid waste management world in Connecticut (i.e., municipalities with municipally staffed collection; haulers; regional solid waste transfer/facility operators) to establish best management practices and networking opportunities.
- Provide learning and professional development opportunities for solid waste and recycling professionals.
  - Advisory committee participants should volunteer more frequently to serve as speakers to talk about innovative projects and/or best management practices in-person and/or using webinars.
  - Solid waste facility operators need more professional development than current operator training program and need more networking opportunities and learning beyond the permit to better understand the solid waste management system in Connecticut and the region. (Note: a listserv will likely not work for this group, many are not on-line and do not learn/communicate well virtually).
  - Provide certified training with frequent updates for professional development that provides CEUs like Solid Waste Association of North America (SWANA) or Northeast Resource Recovery Association (NRRA).

#### **4. Redefine the role of the Connecticut Resources Recovery Authority (CRRRA) and the role and value of multiple Regional Solid Waste Authorities**

CRRRA was founded in 1973 to address the increasing difficulties of municipalities to ensure that adequate waste management services are provided at reasonable costs, without damage or hazard to the environment and the loss of useful resources (Connecticut General Statutes Sec. 22a-258). Under current state law CRRRA is responsible for the implementation of the operational aspect of the Statewide Solid Waste Management Plan, specifically, the Solid Waste Management System, which is that portion of the Solid Waste Management Plan specifically designed to deal with the provision of waste management services and to effect resources recovery and recycling by means of a network of facilities reclaiming either the material or energy values from solid wastes. The purposes of CRRRA are described in [Connecticut General Statutes Section 22a-262](#), and include the provision of a broad range of functions and services.

CRRRA does not receive direct state funding, relying solely on revenues from operation of its facilities, which nets revenue from tip fees provided by participating municipalities and electricity revenues from electricity sold into the grid. At the time of its founding, its statewide role made sense. However, over

the years, as CRRA's assets have shifted to private ownership, revenue options for CRRA have been reduced. A declining number of Connecticut municipalities are paying for solid waste services through CRRA.

Current DEEP and CRRA Roles and Responsibilities in Solid Waste Management		
Role	DEEP	CRRA
Financing	DEEP Commissioner manages funds from Legislature or State Bond Commission	X
Planning	X	X
Education	X	X
Regulation: Permitting	X	
Regulation: Inspection & Enforcement	X	X
Regulation: Licensing	X	X
Product Stewardship	X	
Services Delivery/ Operations; Cooperative Purchasing	DEEP approves CRRA's Annual Plan of Operations	X

Complicating the responsibility landscape, the waste-to-energy industry is facing a potentially substantial alteration in revenue streams. According to publicly available documents a significant percentage of CRRA revenue comes from the sale of electricity generated at the Mid-Conn plant. In the last year electricity sale prices have gone from \$0.085/kWh to \$0.035/kWh or below. The low pricing is expected to stay in that range for the near term due to natural gas pricing. This drop in revenue, on the order of \$20 million annually, could lead to a significant increase in tip fees if not offset in some way.

*Redefine the role of the Connecticut Resources Recovery Authority (CRRA) and the role and value of multiple Regional Solid Waste Committees*

**RECOMMENDATIONS**

**Analyze and simplify the role and responsibilities of CRRA**

Description:

- Analyze the role of CRRA in its governance, responsibilities, and operations and provide recommendations for improvement.
- As a result of the situation described above, the Working Group is recommending that given the evolution of the waste management system in Connecticut, it is no longer appropriate for CRRA to have a statewide role, at least in the areas of bonding, education, and development. A transition plan is needed to evaluate the functions of the organization and manage this changed role, with time and consideration of the operational requirements of the regional transfer stations, landfills, and other functional roles. It would be appropriate to manage this transition with advisory input from affected towns impacted by changes.

The Working Group is recommending the roles and responsibilities for CRRA and other agencies as outlined below.

Proposed DEEP and CRRA Roles and Responsibilities in Solid Waste Management				
Role	DEEP	CRRA or Regional	Infrastructure Bank	Other
Financing			X	Private Sector
Planning, System Architecture	Primary	Secondary		
Education	X			
Regulation: Permitting	X			
Regulation: Inspection & Enforcement	Primary	Secondary (regional)		Secondary (municipalities)
Regulation: Licensing				DMV?
Product Stewardship	X			
Services Delivery/ Operations; Cooperative Purchasing		Primary		Secondary (Municipalities and Private Sector)

Options:

- *Simplify:* Remove some of CRRA statewide responsibilities and transition organization to a simplified regional role similar to other existing regional organizations that manage waste (Southeastern Connecticut Regional Resource Recovery Authority, etc). Relieve CRRA of responsibility for implementation of statewide education and operational aspects of the State Solid Waste Management Plan.
- *Privatize:* Create a 3- to 5-year plan to entirely disband CRRA and privatize its assets and liabilities. This would likely require a utility regulator such as the Connecticut Public Utilities Regulatory Authority (PURA) to have a role in managing tip fees and other costs for towns to ensure municipalities are not impacted by price gouging at recycling facilities, transfer stations, and waste-to-energy facilities.
- *Repurpose/Disband:* Distribute CRRA's key statutory capabilities to lay the foundation for other organizations driving the future of Connecticut materials management (e.g., bonding authority to Connecticut Innovations or CEFIA for infrastructure bank, market development to DECD, and public education to DEEP).
- Relieve CRRA of post-closure obligations at landfills, and have another entity (e.g., state, regional authority, municipality) assume role and control post-closure funding reserves.

All of these options, and any option pursued that is not listed here would necessitate the creation or elevation of a board of impacted municipalities to manage the transition.

## CONCLUSION

The Working Group has a vision of better economics *and* a better environment. This report offers Governor Malloy a vision of a materials economy based on capturing recyclable materials that are not yet recovered, resulting in sustainable materials management. To continue to be a leader in the region, Connecticut needs to once again invest in recycling infrastructure, modernize pricing systems, phase-in source separated organics recycling and anaerobic digestion, and further advance product stewardship systems. Implementation will require developing stronger markets for recycled material, increasing incentives to recover more materials, clearer economic pricing signals, and supporting strategic investment in a diverse and responsive infrastructure through public and private partnerships.

To drive towards a mindset of value extraction from a mindset of waste management, a new paradigm needs to be built into the Connecticut culture. The result will be reduced costs for municipalities and residents and more economic activity based on expanding reuse and recycling sector jobs.