

Section 1: MIRA references in Comprehensive Materials Management Strategy (CMMS)

LEADING CHALLENGES

(Notes in Blue by Tom K)

Uncertain Future for Existing Resource Recovery Facilities

The Materials Innovation and Recycling Authority (MIRA), the state's quasi-public agency for resource recovery and recycling, as well as private-sector owners of RRFs warned that the expiration of long-term contracts for waste disposal, decreased revenue from energy sales, and maintenance costs threaten their economic sustainability.

Areas for Action

The state (DEEP and/or MIRA) will study the flow, recycling, and disposal of oversized MSW which accounts for as much as 30 percent of the incoming stream at volume reduction facilities. The goal of this study will be to determine opportunities and incentives to increase reuse and recycling, as well as the potential to develop new options for in-state disposal. (This is a primarily C&D issue . CT exports about 700,000 of C&D waste, by truck and rail annually. It is a significant waste stream but MIRA and the municipalities have little involvement in its management)

The Role of Quasi-Public Agencies in Infrastructure Modernization

The development of new materials management infrastructure will require a coordinated state program combining investment, incentives, and siting assistance. (TDK: note that despite the CMMS acknowledging the need for Public investment, \$, DEEP has declined to pursue public financing for the SRRT project)

Just as the Connecticut Resources Recovery Authority ("CRRRA") developed the state's fleet of recycling facilities and energy recovery plants in place of landfill disposal capacity, the Materials Innovation and Recycling Authority ("MIRA," CRRRA's successor), has the potential to help facilitate a statewide transition to the next generation of materials management infrastructure. However, significant structural challenges may prevent MIRA from assuming this role, including organizational resources focused on operating existing facilities rather than developing/promoting new ones, and the possibility that a change in the status of MIRA's Connecticut Solid Waste System Project facilities (either closure or transfer to a third-party developer) could significantly reduce the organization's operating revenues.

DEEP will act as a partner for the MIRA Board of Directors and staff, strengthening existing ties between the two agencies and communicating frequently about matters of shared concern. DEEP will also consider how to encourage municipalities to demonstrate their commitment to regional action in order to provide the necessary certainty in planning and implementing regional or statewide infrastructure investments. In turn, MIRA will provide its vision for future infrastructure development and an assessment of its capability to help lead this transition.

Either as an alternative or to augment MIRA's role, legislative action may be needed to create a new office, agency, or authority to serve as a catalyst for public-private partnerships to develop new materials management infrastructure.

Areas for Action

Connecticut will consider the benefits of waste conversion technologies as part of a diversified portfolio of material management options in the state, and will: a) consider 23 GHG and air pollution emissions in determining technology preferences and develop related performance standards and permit language, b) remove unnecessary regulatory barriers to the issuance of permits to implement these technologies, c) leverage private investment with public funds when possible to support the development of such facilities in the state.

Connecticut will establish a coordinated state **program combining investment, incentives** (IBID), and siting assistance and clarify the roles of various state agencies and MIRA in relation to material management infrastructure development.

Connecticut will conduct a concept study to determine the potential to develop new ecoindustrial parks.

Resources Recovery (Waste-to-Energy)

(2015 extended unplanned outage) The owner of the Connecticut Waste System RRF, the Materials Innovation and Recycling Authority (MIRA), has warned that similar events are increasingly likely as aging equipment fails and must be replaced. MIRA officials have raised concerns about the practicality of maintaining and/or upgrading the facility.

Goal 2: Develop and improve recycling and waste conversion technologies.

Achieving 60 percent diversion will require at least 10 percent of materials to be diverted using technological processes that are not yet fully developed in the state, and the state must also maintain sufficient disposal capacity for materials that are not diverted.

Objective 2.2: Promote development of new infrastructure in partnership with host communities.

d) The State will develop the capacity, either at DEEP, MIRA, Green Bank, or in a new entity, to help match municipal partners with project developers and align state incentive programs to catalyze development of new infrastructure. Target Date: 12/31/17

Section 2: Highlight of DEEP Tasks in Comprehensive Materials Management Strategy (CMMS)

- Recommendations for the development and implementation of municipal or regional recycling programs
- Options for local compliance of municipalities with recycling requirements.

According to CGS Section 22a-229, any action taken by a person, municipality, or regional authority that is governed by CGS Chapter 446d shall be consistent with this Strategy. Actions presented in this Strategy are rooted in existing statutes and regulations.

To best fulfill its role as both a strategy and expression of policy, this Strategy, more so than past plans, should be seen and treated as a living document, subject to update as frequently as changes to the waste stream, economy, and available technologies dictate.

Plan Adoption, Amendments, and Variances

The process for Plan adoption, amendment, and granting of variances is guided by the Regulations of Connecticut State Agencies (“Regulations”) Section 22a-228-1. Because this Strategy represents a comprehensive revision to the 2006 State Solid Waste Management Plan, the process for Plan adoption was followed. Subsequent changes, if they are not comprehensive in nature, should follow the process for Plan amendment described by the Regulation.

The revision process included public notice, public hearings, and a 45-day comment period. In addition, Public Act 14-94 required that a draft of this Strategy be presented to the Environment Committee of the Connecticut General Assembly. The Committee held a hearing on this Strategy. After considering all comments received and making changes to the draft based upon those comments, the Commissioner adopted this Plan by his signature on July 19, 2016.

Section 22a-228-1(b) of the Regulations anticipated that amendments will be developed by the Commissioner or at the request of municipalities and integrated into the Plan every two years as needed. The Regulations provide the process by which amendments to the Plan are made, including public notice and comment and the option for a public hearing. Consistent with the Regulations, DEEP will review the CMMS periodically, solicit input from municipalities and other stakeholders, and make amendments as needed.

7/2018

Under Section 22a-228-1(c) of the Regulations, municipalities may apply to the Commissioner for temporary variances if unable to join in the implementation of any part of this Strategy.

information on what can be recycled in single-stream are key elements of this outreach campaign.

The Cost of Recycling Collection

Municipal officials and others raised concerns about the cost of mandatory recycling. Despite avoided costs of disposal, the cost of collection programs can burden municipal governments. In addition, municipalities that market recovered materials from transfer stations have been impacted by declining commodity values in recent years.

Uncertain Future for Existing Resource Recovery Facilities

The Materials Innovation and Recycling Authority (MIRA), the state's quasi-public agency for resource recovery and recycling, as well as private-sector owners of RRFs warned that the expiration of long-term contracts for waste disposal, decreased revenue from energy sales, and maintenance costs threaten their economic sustainability.

Time Required for Permitting

Stakeholders identified statutory and regulatory provisions and practices that can act as barriers to innovation in material management technology and infrastructure. Another frequently mentioned concern was the time and resources needed to obtain environmental permits, beneficial use determinations ("BUDs"), and approval for solid waste demonstration projects.

Opportunities to Increase Diversion

This section introduces key areas for action. Actions and timetable for implementation are further detailed in the final section of this Strategy.

a. Develop New Product Stewardship Programs, Including a Focus on Consumer Packaging

Product stewardship is the act of minimizing the health, safety, environmental, and social impacts of a product and its packaging, while maximizing the economic benefits, throughout all lifecycle stages. The producer of the product has the greatest ability to minimize adverse impacts, but other stakeholders, such as suppliers, retailers, and consumers, also play a role. Stewardship can be either voluntary or required by law.

Extended Producer Responsibility, or EPR, is a mandatory type of product stewardship that includes, at a minimum, the requirement that the producer's responsibility for its product extends to post-consumer management of that product and its packaging. There are two related features of EPR policy: (1) shifting financial and management responsibility, with government

b. Reduce the Generation and Toxicity of Waste

While economic factors are the primary drivers of changes in waste generation, Connecticut can achieve meaningful reduction in waste generation, as well as increased recycling, through the widespread implementation of unit-based pricing structures that reward consumers for reducing waste. Despite having been recognized for its high potential impact since the 1980s, only a handful of towns in Connecticut have implemented effective pricing structures. DEEP will continue to promote this proven approach.

One barrier to the reduction of waste is the presence of “put-or-pay” clauses in contracts between facilities and municipalities. These contract provisions bind municipalities to deliver a minimum quantity of waste, or pay the difference. DEEP views these clauses to be categorically contrary to the state’s policy to promote waste reduction, except when they are necessary to finance the development of a facility.

In addition to reducing waste generation, source reduction also seeks to reduce climate impacts and toxicity of waste through redesign of products and packaging and changes in purchasing and other practices.

Areas for Action

- DEEP will review contracts for the presence of “put-or-pay” clauses and ensure that no such clauses are enforced beyond the retirement of bonds or other debt issued to finance facility construction.
- DEEP will build on the success of early measures to eliminate toxic and problematic materials from the waste stream through approaches that may include compliance assurance, technical assistance, surcharges, regulations, disposal bans and/or extended producer responsibility (EPR) programs.
- DEEP will explore approaches to provide more effective collection and management of household hazardous waste.
- Connecticut will increase the number of municipalities that enact effective unit-based pricing approaches, and will make adoption of unit-based pricing a key indicator of municipal recycling system performance (and compliance with statutory recycling performance goals).

c. Promote Reuse

Reuse involves extending the life of a product, packaging, or resource. The broad spectrum of reuse-related activities includes everything from the creative reuse of materials by artists and artisans, to retreading of tires, to building deconstruction practices that preserve reusable building materials, to repairing durable goods such as electronics, appliances, bicycles and automobiles. Reuse is a force in the wider economy, with businesses such as ZipCar, Savers and various consignment markets, and nonprofits such as Goodwill Industries, Salvation Army, and

g. Embrace Technological Approaches to Diversion

The state faces a likelihood of significant shortfalls of in-state disposal capacity in the coming years with the retirement of existing waste-to-energy facilities. The state's 60 percent diversion goal, while calling first for source reduction and increased recycling, also prompts the state to consider a role for waste conversion technologies in diverting materials from landfill and traditional combustion plants. Examples of waste conversion technologies include, but are not limited to, anaerobic digestion, gasification, plasma arc gasification, pyrolysis, and hydrolysis/fermentation (waste-to-ethanol).

In addition to waste conversion technologies, eco-industrial parks can be part of a comprehensive approach to diversion. Eco-industrial parks can co-locate multiple recycling / conversion processes with end users of recovered materials, such as mixed waste processing facilities to recover materials from post-recycled MSW, and glass beneficiation facilities.

The Role of Quasi-Public Agencies in Infrastructure Modernization

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GHG and air pollution emissions in determining technology preferences and develop related performance standards and permit language, b) remove unnecessary regulatory barriers to the issuance of permits to implement these technologies, c) leverage private investment with public funds when possible to support the development of such facilities in the state.

- Connecticut will establish a coordinated state program combining investment, incentives, and siting assistance and clarify the roles of various state agencies and MIRA in relation to material management infrastructure development.
- Connecticut will conduct a concept study to determine the potential to develop new eco-industrial parks.

Actions to Maintain System Capacity

The Goal of Capacity to Match Generation

Connecticut should have sufficient in-state capacity for recycling, processing and disposal to manage waste generated within the state. Self-sufficiency in managing solid waste represents good public policy for Connecticut for many reasons, including decreasing the carbon footprint of waste, controlling costs, and avoiding risks associated with exporting solid waste.

Connecticut must develop and maintain sufficient capacity to manage its share of the environmental impact of the materials generated within the state. Failure to maintain sufficient capacity effectively transfers the burden for management of Connecticut's waste materials to our neighbors.

Sufficient Capacity Stabilizes Costs

Sufficient supply of in-state processing capacity to meet demand stabilizes costs to the benefit of municipalities and businesses. While there are compelling environmental reasons for maintaining a self-sufficient waste system, the state must also consider the strong economic and budgetary implications of a shortfall of in-state capacity. In 2015, disruptions to the market caused by the closure of Covanta's Wallingford RRF, combined with extended shutdowns at other facilities, drove tipping fees for non-contracted "spot market" waste to exceed \$100/ton, over twice the typical rate. Municipalities and other customers should plan for much higher costs in years to come as the result of a breakdown of the in-state disposal market associated with insufficient capacity. Conversely, reasonable excess capacity, though it may result in the import of feedstock from neighboring states, leads to a healthier market with prices more favorable to customers.

Defining RRF Capacity for the Determination of Need Process

The Determination of Need process set forth by CGS 22a-208d was noted in 2010 findings by the Legislative Program and Review Committee to stifle the state's ability to develop new RRF capacity in a time of transition. Because facilities typically take five years or longer to develop, the state should allow the development of some "excess" capacity in anticipation of future plant closures. For this and other reasons, this Strategy recommends that the Determination of Need process be substantially streamlined.

Pending clarification or streamlining of the Determination of Need process, this Strategy seeks to clarify, in accordance with CGS Sections 22a-208d and 22a-208d(i), how DEEP may consider the question should it receive an application. While the official determination must be made in response to an application, the guidance contained in this Strategy should indicate the state's receptivity to the development of new RRF capacity in this period of a shortfall in disposal capacity. As stated elsewhere throughout this Strategy, it is preferred that such capacity take the form of waste conversion technologies as opposed to combustion-based waste-to-energy.

The formula used to determine allowable capacity (unless otherwise determined by the Commissioner) is the total amount of MSW disposed in the most recent fiscal year for which data is kept, minus active RRF capacity at time of application (at 85% usage), plus the capacity of the smallest active RRF at time of application (to hedge against future facility closures).

For example, in 2016, this formula would be applied as follows:

MSW disposed:	2,413,833 Tons-
Total current (2016) active RRF capacity (85%):	<u>2,035,556 Tons</u>
	378,277 Tons

378,277 tons + 166,294 (85% Lisbon RRF permitted capacity) = 544,571 TPY in new RRF capacity would not be considered excessive.

Maintaining Existing Waste-to-Energy Capacity

While this Strategy prioritizes the actions needed to develop new infrastructure, it is also important to ensure that existing waste-to-energy infrastructure remains operational for as long as it is needed. Existing waste-to-energy facilities currently receive revenues from a range of sources, including the region's wholesale energy and capacity markets and/or municipal power purchase agreements; Class II RECs (which are generally oversupplied); and tipping fees paid by municipalities to use the facility. Facilities may be experiencing shortfalls in revenue as a result of recent low wholesale market prices and expiring power purchase agreements. Some operators have raised concerns that these trends will result in the retirement of facilities in the State that are needed to support the capacity needs as defined by this Strategy. DEEP will be examining this issue as part of the upcoming 2016 Comprehensive Energy Strategy (2016 CES). Specifically, the 2016 CES will seek to confirm (1) whether any additional ratepayer support (in addition to that provided through Class II RECs) is necessary to avoid premature retirements of

needed waste-to-energy facilities in the state, and (2) in the event that additional ratepayer support is needed, what would be the best mechanism to provide such support (e.g., changes to the Renewable Portfolio Standard, power purchase agreements, etc.).

In the spirit of harmonizing materials management priorities with renewable energy and climate change goals, it is appropriate to evaluate the GHG benefits of waste-to-energy as compared with other disposal options. Solutions should be tied to initiatives that further the state's diversion goal and promote the development of cleaner waste conversion technologies.

MRFs and Intermediate Processing Needs

The state enjoys a relatively high concentration of Material Recovery Facilities (MRFs, otherwise called Intermediate Processing Centers) that is sufficient to meet demand for MSW-derived recyclable materials, even with expected increases in the collection of recyclable materials under this Strategy. However, the state could benefit from advanced sorting lines and other improvements at existing and new facilities.

The state lacks sufficient secondary processors to receive and further refine the materials coming from MRFs. Among the actions of this Strategy to spur investment, focus should be put on the development of these processing facilities and market drivers to increase demand, including through State procurements.

C&D Processing

The state currently lacks sufficient infrastructure (facilities, equipment, and sorting lines) needed to recover recyclable C&D materials and oversized MSW. The highest-performing volume reduction facilities for recycling (those with sorting lines) recycle less than 20 percent of incoming material.²⁰ Substantial investment in new infrastructure is required if the state is to achieve 60 percent diversion of these materials and to develop the market drivers to increase demand.

In addition, the vast majority of these materials are disposed out-of-state in landfills. This Strategy specifically calls for further study of all C&D management options, with an emphasis on promoting greater source separation of recyclable materials at construction job sites.

²⁰ Excludes clean fill, tonnages of which are not reported to DEEP.

In 2015, an extended unscheduled shutdown of the Connecticut Waste System (Mid-CT) RRF at the same time as scheduled maintenance of other RRFs resulting in tens of thousands of tons of MSW being transferred out-of-state for disposal. Market conditions and the added cost to transport waste out-of-state prompted Covanta to increase commercial tipping fees at its Wallingford transfer station by nearly 30 percent, imposing unexpected and unwelcome cost increases on collectors and customers. The shutdown also increased queue times at tipping areas, causing delays to the normal operation of collectors and increasing overtime and other costs.

The owner of the Connecticut Waste System RRF, the Materials Innovation and Recycling Authority (MIRA), has warned that similar events are increasingly likely as aging equipment fails and must be replaced. MIRA officials have raised concerns about the practicality of maintaining and/or upgrading the facility.

Through a Request for Proposals (RFP) issued November 6, 2015, the state began a process to explore options for the redevelopment of the Connecticut Waste System RRF. However, any future redevelopment will take at least 3-5 years to complete, and may not replace the entire 888,888 TPY capacity of the current facility. This outcome has the strong likelihood of further disrupting current market patterns, raising costs for municipalities and other customers and leading to a vast increase in the amount of waste sent out of state to landfill. As discussed throughout this Strategy, this looming capacity shortfall can only be effectively addressed by swift action leading to the development of new facilities elsewhere in the state.

MSW Landfilling

Connecticut is the U.S. state closest to eliminating the landfilling of MSW within its borders. This distinction should not obscure the fact that the state sends significant (though still comparatively small) quantities of MSW, as well as the vast majority of its disposed C&D waste, to out-of-state landfills.

In FY2013, only 21,000 tons of the total amount of Connecticut-generated MSW was landfilled in the state, all of it at the Windsor-Bloomfield Sanitary Landfill, the state's sole active MSW landfill. This is a significant decrease from 2006 levels, when the now-closed Hartford landfill accepted an additional 100,000 tons/year of MSW. The Hartford Landfill ceased ash landfilling and residue landfilling operations in 2008 and officially completed closure in 2015.

While in Connecticut, the prospect of future development of new landfill capacity for MSW disposal was once considered unlikely, the potential for escalating costs associated with out-of-state disposal could change the calculus for cities and towns until new facilities are permitted and operational within Connecticut. State law and Connecticut's long-standing vision to move up the materials management hierarchy discourages that course of action, calling instead for increased source reduction, reuse, recycling, and investment in recycling and modern waste conversion infrastructure. Given that better alternatives exist, this Strategy rejects the development of new in-state landfill capacity for MSW disposal.

residual digestates of anaerobic processes, and priority processing of permit applications for facilities that will manage organics. Target Date: Ongoing

- d) DEEP, in possible partnership with the RecycleCT Foundation, will offer grants for educational programs that encourage food waste reduction, engage in food recovery, provide home composting education, and support community composting initiatives. Target Date: On or before 7/1/17

Objective 1.5: Promote source separation and best management practices of recyclable C&D and Oversized MSW materials.

Both voluntary and mandatory programs for the source separation and management of materials will be considered. The following actions are needed to meet this objective:

- a) DEEP will reevaluate permit standards for diversion of recyclable materials at volume reduction facilities. Target Date: On or before 7/1/17
- b) DEEP will develop and implement an initiative to increase source separation of designated recyclables at job sites. Target Date: On or before 12/31/17
- c) Connecticut will consider designating new materials for recycling, depending on the status of markets of those materials. Target Date: Ongoing
- d) Connecticut will promote deconstruction and reuse of C&D materials. Target Date: Ongoing
- e) DEEP will study opportunities for diversion of oversized MSW as well as increasing in-state disposal options for these materials. Target Date: Ongoing

Objective 1.6: Improve collection and processing systems for "single-stream" recyclables.

- a) DEEP will increase enforcement of mandatory recycling provisions, with state-led programs of technical assistance, compliance assurance, and enforcement for commercial generators and multi-unit residential dwellings. Target Date: Ongoing
 - b) DEEP will study and provide options to policymakers for the identification / creation of funding sources for state and local programs related to recycling and sustainable materials management. Target Date: 1/1/2017
 - c) Connecticut will increase outreach and education, including via the RecycleCT Foundation, to promote effective public participation in recycling. Main areas
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including anaerobic digestion, gasification, and technologies that convert waste to fuel or other chemical byproducts. Target Date: Ongoing

- d) DEEP will continue to refine its internal processes to ensure timely decisions for new and modified permits while maintaining environmental standards. Target Date: Ongoing
- e) In an open and transparent process, DEEP will refine and develop new performance standards for recycling and volume reduction facilities and integrate those standards into permit language. Target Date: Ongoing
- f) DEEP will develop a policy to promote the retention of needed Waste-to-Energy capacity while promoting innovation. Target Date: Ongoing

Objective 2.2: Promote development of new infrastructure in partnership with host communities.

- a) The State will study and/or inventory potential sites for waste facilities. Target Date: 12/31/17
- b) The State will develop a concept study for potential facility development, including an eco-industrial parks. Target Date: 12/31/17
- c) DEEP will study and provide options to policymakers for the identification / creation of funding sources for programs related to the development of new infrastructure. Target Date: 1/1/17
- d) The State will develop the capacity, either at DEEP, MIRA, Green Bank, or in a new entity, to help match municipal partners with project developers and align state incentive programs to catalyze development of new infrastructure. Target Date: 12/31/17

Objective 2.3: Leverage intersections between renewable energy, climate, and materials management goals.

- a) DEEP will carefully study how incentives for renewable energy production may be used to promote technologies that recover energy from waste. Target Date: Ongoing
 - b) DEEP will explore opportunities to prioritize permitting for Class I resources to enable improved access to time-limited financial incentives (e.g., Virtual Net Metering). Target Date: Ongoing
 - c) DEEP will engage municipalities in achieving sustainability goals as part of statewide coordination of sustainability actions to assist municipalities to
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