Connecticut Coalition for Environmental Justice

Comments on DEEP Resource Rediscovery RFP Phase II
on Modernizing the Connecticut Solid Waste System Project

Submitted by Connecticut Coalition for Environmental Justice

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Sharon E. Lewis
Executive Director

November 24, 2017

The Connecticut Coalition for Environmental Justice respectfully requests that the RFP process be canceled and reworked, since all three of the finalists' proposals rely on highly polluting waste incineration to a large degree, and thus fail to comply with the internationally peer-reviewed definition of Zero Waste and the Zero Waste Hierarchy, would contradict the state's purported climate goals, and would continue to harm human and environmental health.

Connecticut can learn from Prince George's County, Maryland in this regard. After sinking in a few years and much public money into an RFP process toward development of a so-called "waste-to-energy" project, and narrowing a set of 16 potential vendors to 7 finalists, including two of the three finalists in this process (Covanta and Mustang), the county canceled the entire RFP process in August 2016. They then started proceeding in earnest to develop a Zero Waste Plan for the county, with significant involvement by environmental and community stakeholders. Similar to the CSWS project serving 1/3rd of Connecticut's 3.6 million population, Prince George's County's system serves a population of over 900,000. Connecticut and Prince George's County, MD share an almost identical median household income of about $72-73,000.

There are many elements to the three finalists' proposals that are worthy and should move forward. However, the fact that all rely on incineration of the remaining waste is a fatal flaw worthy of taking a step back to "rediscover" how to best manage discarded resources. The front end of the Zero Waste Hierarchy also deserves more attention, with one of the most important solutions – a unit pricing scheme known as Pay as You Throw – not a part of any of the proposals.

In short, the three proposals would continue the outdated practice of burning trash in some of the largest air polluting facilities in the region:

- Sacyr Rooney: would keep the incinerator in Hartford operating, where it would remain the second largest air polluter in Hartford County, even with their proposed emissions reductions.

- Covanta: would close the incinerator in Hartford, and require expansion of their incinerator in Bristol, making the Bristol incinerator the second largest air polluter in Hartford County.
- Mustang: would send waste to be burned in a cement kiln in Ravena, NY (with CT and MA downwind). Cement kilns are not designed to burn trash and lack the pollution controls of trash incinerators. That cement kiln is the 5th largest air polluter among 1,159 air polluting facilities in the state of New York.

The good elements of these proposals – where they comply with the Zero Waste Hierarchy – can be lifted up and should be expanded, but should not be approved so long as the incineration aspects described above are eliminated from consideration. "Waste-to-energy" and "energy recovery" are just euphemisms for waste incineration, aiming to avoid the well-deserved stigma of trash incineration.

Trash incineration, whether in incinerators or cement kilns, is highly polluting, is dirtier than coal-burning by most measures, and is NOT preferable to directly landfilling waste. Trash incineration is the most expensive and polluting way to manage waste or to produce energy.[1]

A proper Zero Waste approach would eliminate incineration of any sort, and after maximizing the front-end approaches, ensure that the residuals are biologically stabilized with an anaerobic digestion process prior to landfilling, to avoid the greenhouse gas problems and to minimize odors at the landfill.

Zero Waste Hierarchy

First and foremost, DEEP and MIRA must embrace the internationally peer-reviewed Zero Waste definition and adopt a comprehensive Zero Waste Hierarchy, and follow it.

Zero Waste is defined by the Zero Waste International Alliance, the only internationally peer-reviewed definition, as follows:

> "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.
>
> Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them.
>
> Implementing Zero Waste will eliminate all discharges to land, water or air that are a threat to planetary, human, animal or plant health."
>
> Source: www.zwia.org/standards/zw-definition/

There is an accompanying Zero Waste Hierarchy. It was first developed by Energy Justice Network in 2004, and our early version of the Zero Waste Hierarchy has been used as the basis for the policies of

[1] www.energyjustice.net/incineration - see the documentation on this page for industry and government data showing how trash incineration compares on economic and environmental measures to landfills and to electricity generation alternatives

the City of Oakland, CA, and later by the Zero Waste International Alliance, which has their hierarchy online here, crediting Energy Justice Network: www.zwia.org/standards/zero-waste-hierarchy/

The leaders in the field of defining Zero Waste are the Zero Waste International Alliance (ZWIA), Energy Justice Network, Global Alliance for Incinerator Alternatives (GAIA), Institute for Local Self-Reliance (ILSR), and Dr. Paul Connett of the American Environmental Health Studies Project, who literally wrote the book on Zero Waste, called The Zero Waste Solution. See: www.americanhealthstudies.org

The Zero Waste Hierarchy can be found here: www.energyjustice.net/zerowaste/hierarchy

All of the zero waste hierarchies developed by Energy Justice Network, ZWIA, and Dr. Connett agree that incineration has no place in the system, but that existing landfill capacity should be used and its lifetime maximized.

While there are slight nuances, you'll find that the Zero Waste Hierarchy developed by Energy Justice Network, and the ones from Dr. Connett and ZWIA, are quite similar, but diverge significantly from the EPA's "waste hierarchy" – which was never meant to be a Zero Waste Hierarchy. Our colleagues met a few years ago with the head of EPA's Office of Solid Waste, Mathy Stanislaus, and he admitted that incineration has no place in a waste hierarchy, and that EPA's hierarchy is outdated and needs to be revised. DEEP and MIRA should not look to this outdated waste hierarchy and should stop borrowing these concepts which wrongly place incineration ("energy recovery") above landfilling.

Zero Waste is not a utopic unrealistic policy expecting to actually reach zero. A proper Zero Waste system eliminates incineration of all sorts and aims for at least 90% diversion from landfills while striving to get as close to 100% diversion as possible. It's like "zero drug tolerance" or "zero safety defects" or "zero workplace injury" standards. No one sets a goal of, say, injuring five workers a year. That would be laughable. Zero waste is the same way. Zero is the goal, and the policies should strive for constant improvement to get closer to it. A simple goal of 60% diversion from landfilling or combustion fails to prioritize the need to avoid combustion completely, and still allows for quite a bit of waste going to disposal without ensuring the best approaches to minimize greenhouse gases and other air pollutants.

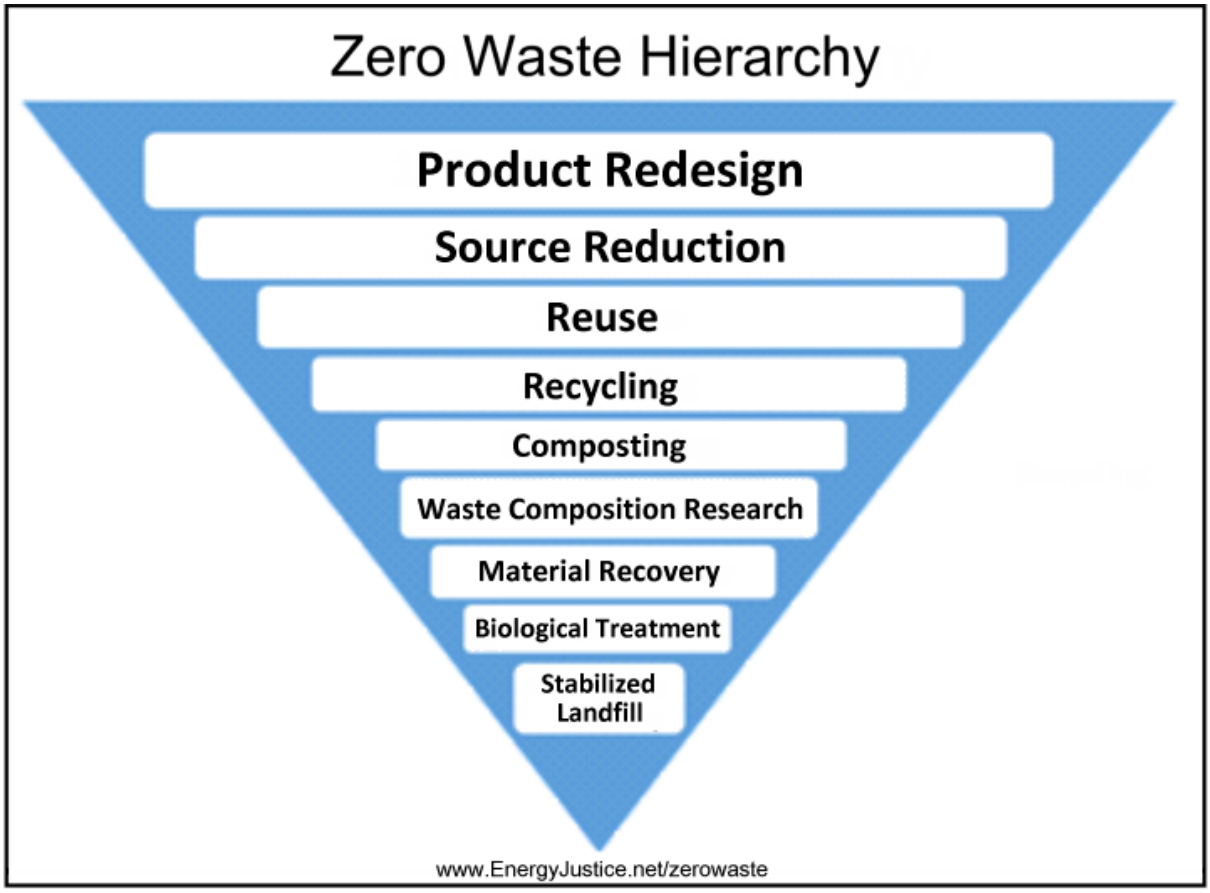
There are four main approaches available:

1. Direct landfilling - bad, but better than incineration
   Leachate (toxins)
   Air emissions (toxins, methane, odors)
2. Incineration → toxic ash to landfill – more polluting and expensive option
   Leachate (even more toxins)
   Air emissions from incinerator and from ash blowing off of landfill site (toxins)
3. Deregulation (burning in kilns, applying waste to land) – most polluting, but cheaper
   Land and water contamination from dirty "compost" applied to land
   Air emissions from cement kiln incineration (toxins)
4. Anaerobic digestion → landfill - best option, economically and environmentally
   odor, leachate and air emissions highly minimized; avoids gassy, stinky landfills

A Zero Waste system, which includes option #4 above, avoids the gassy, stinky landfill by reducing the amount by 90% or more, and biologically stabilizing whatever does go into the landfill so that gas (and odor) generation isn't as much of an issue.

A new RFP and Zero Waste plan ought to explicitly state that Zero Waste means 100% avoidance of incineration (and related "waste-to-energy" and "energy recovery" schemes) and achieving at least 90% reduction in per capita waste generation going to landfill disposal.

Copies of the "10 steps to zero waste" by Dr. Connett can be found in his book and on these webpages:
www.zerowasteitaly.org/documenti/barletta/CONNETT10stepstoZW.pdf
www.zerowasteeurope.eu/wp-content/uploads/2012/05/San-Sebastian.TEN-STEPS-Short-Zero-Waste-Paul-Connett.pdf
www.ecodyger.com/2014/zero-waste-10-ways-to-do-it-and-the-law-that-blocks-it/
The hierarchy is as follows:



A detailed version of it is available at www.energyjustice.net/zerowaste/hierarchy

Some important elements to get the back end of a Zero Waste right:

- Recycling should be multi-stream, with as much source separation as possible, ideally with paper or glass separated from other recyclables.
- There must be a research step, which involves regular waste sorts to see what is left and where the Zero Waste program has failed, in order to use that feedback to inform upstream policies to ban, redesign or help divert those materials that still are ending up in the trash stream.

- There must be a material recovery step, essentially a "dirty MRF" that sorts out additional recyclables from trash, though this should never replace the focus on source separation, as it's needed to ensure high quality and market value.
- There must be a biological stabilization step that uses aerobic composting, or – ideally – anaerobic digestion followed by aerobic composting, to reduce the methane generating potential before landfilling, as this is far more efficient at capturing methane than trying to capture it in an open air landfill situation.
- Stabilized and properly-managed landfilling must remain the final step, as anything else is even more damaging to health and the environment.

The Environmental Protection Agency estimates that 75 percent of our municipal solid waste is recyclable or compostable. Genuine Zero Waste programs aim for 90% diversion, and the best in the world have achieved 90% diversion already, with the best program in the U.S. (San Francisco, CA) claiming to have reached 80% diversion already. While some of that may be inflated, there is much that Connecticut should learn from the program design there, and in another leading program in Halifax, Nova Scotia. Austin, Texas also has an ambitious Zero Waste Plan that aims for 95% diversion by 2040 with high targets along the way.

For a successful program, there should be more emphasis on public sector involvement, and where the private sector is involved, proper incentives and penalties ought to be incorporated to ensure that diversion rates are actually accomplished.

Not only is incineration the most polluting way to dispose of waste and provide energy, its economic benefits pale in comparison to the creation of a Zero Waste economy. This has been underscored in a 2009 report by the Tellus Institute. For example, under the status quo collection, incineration, and landfilling of most of our municipal solid waste stream, about 6 jobs per 10,000 tons of material are created. The collection and processing of recyclables within this stream, however, produces about 18 jobs per 10,000 tons of material handled. Further, the manufacturing of recovered plastics into new uses creates 100 jobs per 10,000 tons of material handled, while manufacturing aluminum and other nonferrous metals into new uses would create approximately 176 jobs per 10,000 tons of material. If we were to continue this analysis by reducing the annual waste stream incinerated by CSWS by at least 41 percent (to reach EPA's 75% metric), that would amount to around 364,440 tons. Approximately 656 collection and processing jobs would be created to handle the plastics, glass, metals, and organic waste.

What's more, the infrastructure to handle additional recyclable material is far more affordable than the costs to retrofit CSWS or replace it with one of the three RFP finalists. For instance, Connecticut, or Hartford City or County could build a new material recovery facility (MRF), which removes additional recyclables from the waste stream. A MRF that processes around 20 tons daily, or 115,000 tons annually – about 13% of the annual waste stream at CSWS – would have a capital price tag of around $8 million. Moreover, this facility could be paid for through Closed Loop Partners – a multi-corporate fund providing municipalities with zero-interest loans to enhance and transition their solid waste infrastructure into something cleaner and sustainable. It makes more sense to build 2-4 of these facilities in the region than continue burning anywhere.

The RFP calls for post-recycled MSW processing capacity of 1,500 to 2,250 tons/day (tpd), or 465,375 to 698,063 tons/year (tpy) at 85% availability. At the same time, it calls for capacity for only 50,000 to

100,000 tpy of source-separate recyclables. Since most of the waste stream is recyclable or compostable, these numbers are fairly backwards.

Some of the most important front-end pieces for a successful Zero Waste program are:

1. Bottle deposit ("bottle bill")
2. Pay as You Throw (PAYT) unit pricing – a.k.a. Save as You Throw, or Save Money and Reduce Trash (SMART)
3. Curbside composting collection for food scraps and yard waste
4. A deconstruction mandate and related policies to reduce construction/demolition waste

Connecticut is ahead of many states in that it has a bottle bill, which perhaps could be further optimized.

Connecticut is also a leading state in Pay as You Throw (or "SMART") policies.[2] However, one of the 40-some towns (Granby) has a curbside SMART program (adopted 7/29/2009). Even in that town, residents get a 65-gallon container for trash (cost included in the tax base), and only residents that exceed the 65-gallon trash container must purchase special town-issued trash bags for $2 each, or can rent an additional 65-gallon container for trash at the rate of $200 per year. 100% of residents participate in the curbside program. In other towns, the PAYT/SMART program only applies to those who bring waste to the landfill or transfer station. Some towns have as much as 30% (Clinton) to 44% (Essex) of their residents participating in this, but comprehensive curbside programs would be far more effective. PAYT consultants, Waste Zero (www.wastezero.com) have shown that there is a fairly immediate 44% reduction in waste disposed per capita upon introduction of comprehensive PAYT/SMART unit pricing programs.

Curbside composting collection is also crucial, since it's a large portion of the discard stream and the best way to avoid gassy, stinky landfills and the global warming impacts of them is to divert the organics to aerobic composting.

Construction and demolition waste is also a large part of the waste stream, though perhaps outside of the scope of this RFP. Nonetheless, proper policies are needed to reduce this major waste stream. There is an array of policy options available, with a deconstruction mandate being the holy grail. The Building Materials Reuse Association has compiled materials on these options and should be consulted to ensure that the right policies are put in place to capture and reuse or recycle building materials as much as possible.

Incineration

The lifespan of trash incinerators is in the 30-year range. The Mid-Connecticut Resource Recovery Facility in Hartford will be 30 years old in 2018. According to the DEEP Update, "it is an aging facility that is increasingly expensive to maintain."[3] A DEEP press release states that the "facility is aging, and its owner, the quasi-public MIRA, has warned state officials that it would be unable to bear the cost of needed upgrades."[4]

[2] http://www.ct.gov/deep/cwp/view.asp?q=324920#Conn
[3] http://www.ct.gov/deep/lib/deep/waste_management_and_disposal/solid_waste/mira_rfp/deep_update_on_the_rfp_to_modernize_the_ct_solid_waste_system_project.pdf
[4] http://www.ct.gov/deep/cwp/view.asp?A=4918&Q=597366

It's not just aging because parts of the plant date to the 1940s. One of the newest incinerators, the Montgomery County Resource Recovery Facility in Dickerson, Maryland, is 22 years old and is experiencing increasing unplanned equipment and maintenance issues in the past two years, causing unscheduled downtime and bypassing of waste to landfills. It also has had the greatest number of fires in Covanta's 40-plant U.S. fleet, with six uncontrolled waste pile fires in the past two years.

The average lifespan of the 26 U.S. trash incinerators that have closed since 2000 is just 21 years. The average life of the 76 currently operating trash incinerators in the U.S. is 28 years. Not many incinerators operate past 30 years.

Covanta's proposal would have them bringing waste to their existing incinerators in Bristol and Preston. Their Bristol, CT incinerator will be 30 years old in May 2018. Their Preston, CT incinerator is 26 years old. Both Covanta facilities are approaching the end of their lifetime, and should not be expected to be relevant to meet a proposal seeking capacity for another 30 years. Sending waste to any of their aging facilities, which are 22-37 years old, is not appropriate either.

Just as Covanta expresses much skepticism in their proposal about the extra permitting requirements to do a mixed waste processing facility to separate organics (as opposed to the source-separated organics collection program that they are right to prefer), their plans to expand their Bristol, CT incinerator should be met with even more skepticism.

Trash incinerators are among the least popular technologies in the world. Despite hundreds of siting attempts, no company or government has managed to build a new commercial scale trash incinerator in the U.S. at a new location in the 22 years since the Dickerson, MD plant was built (which is now under increasing political pressure to close). Some expansions manage to get built, but the cost, time, and political resistance is often insurmountable. Due to Covanta's space constraints, their reliance on a major facility expansion will be necessary – and also unlikely to occur in a useful time frame, given that it's usually a five-year process at best to permit and build an incinerator or incinerator expansion. More typically, community opposition, litigation, financing, and other matters tie up projects for many more years and nearly always result in project cancelation.

According to data reported to the Energy Information Administration (EIA), the two incinerators Covanta proposes to use are at or near capacity. They claim that their fleet averages 92% availability. Their Preston, CT incinerator is already operating at 100% capacity in recent years. Their Bristol, CT incinerator is operating at 94% capacity as of the first eight months of 2017, for which EIA data is available. This equates to their already using 610 of their 650 tpd capacity, leaving only 40 tpd available between these two incinerators, even if they were able to operate both plants at 100% capacity.

Even if they had no other customers at these two incinerators that they name, their combined capacity (650 tpd at Bristol and 689 tpd at Preston) is just 1,339 tpd – below the 1,500 to 2,250 tpd capacity requirement in this RFP. They'd have to build an "expansion" that more than triples the size of their Bristol incinerator in order to accommodate the waste under this RFP, making it one of the largest in the nation. Given the history of incinerator opposition, it's unreasonable to expect such a major to expansion to go without protected community opposition and litigation that could tie up the project for years. Unlike Hartford, this is a white and middle-class community that fits the profile of communities that have been more successful in beating back incinerator proposals nation-wide.

Air Pollution

According to the U.S. EPA's National Emissions Inventory for 2014 (latest data available), the Mid-Connecticut Resource Recovery Facility in Hartford is the second largest air polluter among 65 industrial air emitters in Hartford County, responsible for 30% of all air pollution from industrial sources. The top four air polluters are the Bradley International Airport, the Mid-Connecticut RRF trash incinerator in Hartford, the Hartford sewage sludge incinerator, and the Covanta Bristol trash incinerator. If the incinerator in Hartford were closed, and the Covanta Bristol incinerator expanded even slightly, the Covanta Bristol incinerator would take the Hartford incinerator's place, becoming the county's #2 air polluter, with Hartford downwind.

Covanta's Southeastern Connecticut Resource Recovery Facility in Preston, CT is the largest air polluter in New London County, responsible for 29% of the total emissions from 27 sources… and would likely be higher if they reported their hydrochloric acid emissions, which they failed to report to EPA's database in all inventories back through 2005. Wheelabrator's trash incinerator in Lisbon is the county's second largest air polluter, making trash incineration responsible for nearly half (48%) of the industrial air pollution in New London County, even though there are paper mills, power plants and chemical/pharmaceutical manufacturing present in the county.

Sacyr Rooney's plan to keep operating the Mid-Connecticut RRF trash incinerator in Hartford is also highly problematic. They plan some modest pollution control upgrades, but even with those upgrades, the incinerator will still be the Hartford County's second largest air polluter by far. The incinerator is already the #1 nitrogen oxide (NOx) source in Hartford County, responsible for 46% of the total from industrial sources – even more than the airport. Sacyr Rooney claims they'll reduce nitrogen oxide (NOx) emissions by 40%, which will help reduce asthma attacks, but even with that reduction, they'll still be the largest NOx emitter in the county. Sacyr Rooney claims they'll also reduce particulate matter and sulfur dioxide emissions, yet doesn't specify what controls they'll use to do any of this. According to the latest industry directory that spelled out pollution control devices at U.S. trash incinerators, the facility uses selective non-catalytic reduction (SNCR) for NOx and has no carbon injection system to control toxics like mercury and dioxins. If the plant is to be allowed to continue to operate, they should be required to install carbon injection as well as state-of-the-art selective catalytic reduction (SCR) for NOx control, to reduce emissions even more than Sacyr Rooney plans to. Even if Sacyr Rooney could bring SO2 and particulate matter emissions to zero, and reduce NOx by 40%, the incinerator would still be the county's second largest air polluter, with 2.3 times the air pollution of the next largest emitter (the sewage sludge incinerator).

In terms of incinerator air pollution, Mustang has the most egregious proposal. They plan to burn shredded trash in the LaFargeHolcim cement kiln in Ravena, NY. Cement kilns are not designed to burn trash and lack the pollution controls of trash incinerators. That cement kiln is the 5th largest air polluter among 1,159 air polluting facilities in the state of New York. According to EPA's National Emissions Inventory for 2014, that kiln, among all of these 1,159 facilities, ranks as one of the worst polluters in the state for many pollutants including being:

- #2 in Hydrochloric Acid
- #2 in Selenium
- #2 in PM2.5 Primary (Filterable + Condensable)
- #3 in PM10 Primary (Filterable + Condensable)
- #3 in Dibutyl Phthalate
- #3 in Sulfur Dioxide
- #4 in Mercury
- #4 in Nitrogen Oxides
- #5 in Methyl Chloride
- #7 in Methyl Bromide

#15 in Naphthalene
#20 in Volatile Organic Compounds
#29 in Lead

Global Warming

Connecticut has a state climate plan, and this RFP recognizes climate change as one element of what needs to be addressed. According to EPA's eGRID data on trash incinerators vs. coal power plants, trash incineration releases at least twice as much CO2 per megawatthour as burning coal.[5] Landfills are also problematic with their methane emissions, but much of the carbon ends up staying in the landfill long-term, and isn't instantly released into the atmosphere as occurs with incineration. An analysis for Washington, DC's Department of Public Works shows that incineration is worse for global warming than landfilling, even when accounting for the latest climate science over a 20-year time frame, showing that methane is 86 times as bad for the climate than CO2. It also showed that trucking the waste 2-4 times as far to landfills had negligible impact.[6]

EPA's FLIGHT database of greenhouse gas (GHG) emissions shows that, for 2016, the state's five trash incinerators are among the top 10 sources of GHGs, when their full emissions are accounted for.[7]

Currently, the way we produce, consume, and dispose of our products and food accounts for 42% of all U.S. greenhouse gas emissions according to a recent study. Tackling the GHG emissions associated with materials and discards management must be a priority. The best way to tackle global warming in waste systems is to adopt a Zero Waste system that rejects incineration/combustion of waste, maximizes diversion through recycling and composting, and utilizes biological treatment (anaerobic digestion) prior to landfilling.

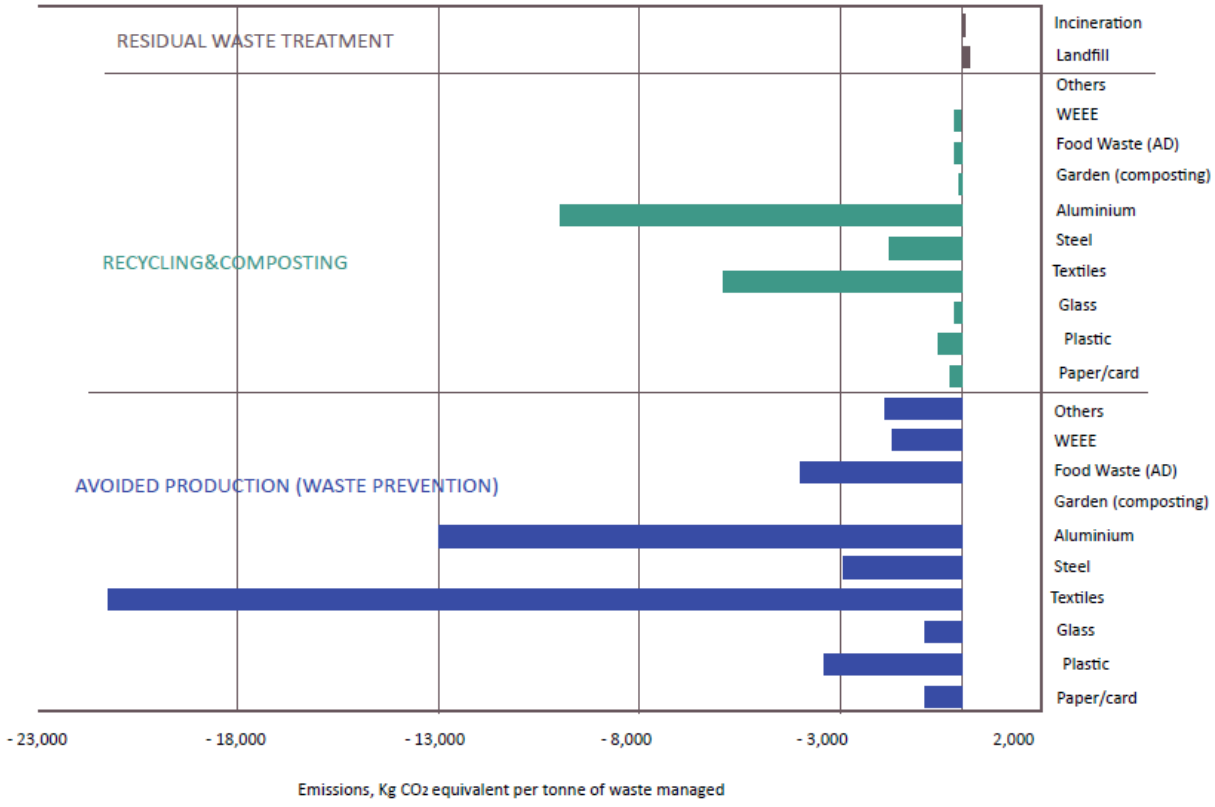
An October 2015 analysis by Eunomia shows (see chart below) that the climate benefits of material diversion vastly outstrip the emissions from landfilling or incineration.[8] Note that the slight difference between incineration and landfills makes landfills look worse because they fail to count about half of incinerator emissions by ignoring the biogenic emissions, which is no longer considered to be an appropriate method of carbon accounting (see the science documented on the carbon neutrality myth here[9]), especially in the wake of the Manomet study commissioned by the Commonwealth of Massachusetts.

Another critical report to review, which looks at the life cycle of waste disposal alternatives, concludes that material recovery and biological treatment (MRBT), with residuals going to landfill, is the most

[5] www.energyjustice.net/egrid
[6] www.energyjustice.net/files/incineration/incineration_vs_landfills_DC.pdf
[7] Note that EPA understates stack emissions from incinerators unless you use the unadjusted numbers from eGRID, which we pulled from the latest available in eGRID 2014 to make this comparison. Data available upon request.
[8] Eunomia, "The Potential Contribution of Waste Management to a Low Carbon Economy," Oct. 2015. www.zerowasteeurope.eu/downloads/the-potential-contribution-of-waste-management-to-a-low-carbon-economy/
[9] www.energyjustice.net/biomass/climate

climate and environmentally friendly option. See "What is the best disposal option for the 'Leftovers' on the way to Zero Waste?" at www.ecocycle.org/specialreports/leftovers

Figure E- 2: Indicative Climate Change Impacts of Key Waste Management Activities (excl. CO_2 from biogenic sources)



We have many other comments more specific to the proposals, but were unable to fully assemble in time over this holiday. We respectfully request that the comment deadline be extended to accommodate more thorough community feedback and involvement in this process, if the RFP process is to continue.

Sincerely,

Sharon E. Lewis /s/

Sharon E. Lewis
Executive Director
Connecticut Coalition for Environmental Justice