

Sullivan County  
DRAFT REQUEST FOR PROPOSALS

on

WASTE TO ENERGY

R-25-21

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**Response by**

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and



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## INTRODUCTION

Energy Justice Network is a national nonprofit organization headquartered in Philadelphia. Founded in 1999, we have member organizations throughout New York State, including Sustainable Sullivan in Sullivan County as well as other member groups in nearby Ulster County, several more throughout the Hudson Valley, and some in other parts of New York State. We co-founded and help facilitate the Zero Waste New York organization and have worked on several detailed policy comments on statewide climate and waste matters, including:

- 2025: [Comments on GHG Reporting Regulations for Cap & Invest](#) (supported by 58 groups)
- 2023: [Comments on NYS Solid Waste Management Plan](#) (supported by 46 groups)
- 2022: [Comments on Waste Chapter of NY Climate Scoping Plan](#) (supported by 16 groups)

Energy Justice Network is a research-based organization that supports communities to transition to clean energy and zero waste systems with a focus on preventing and avoiding polluting industrial operations such as trash incineration.

Our Executive Director, Mike Ewall, Esq. has been deeply involved in waste issues since 1990. In 2004, he authored the Zero Waste Hierarchy that informed the City of Oakland's waste hierarchy before being adopted as the international standard defining Zero Waste through the Zero Waste International Alliance (ZWIA). He serves on ZWIA's technical committee for changes to the internationally peer-reviewed definition of Zero Waste and the Zero Waste Hierarchy.<sup>1</sup>

He also serves as an advisor to Zero Waste Canada and consults with many local community groups. He is a certified Zero Waste Associate and has served as a zero waste consultant for county governments in developing their zero waste plans, including having worked for Ulster County to draft their Zero Waste Implementation Plan.

Since the mid-1990s, Ewall developed local ordinances that have protected communities against unwanted waste facilities in Pennsylvania and New York. He was one of the main authors of a state law adopted by the State of Oregon requiring continuous monitoring of toxic emissions from waste incinerators.

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<sup>1</sup> See <https://zwia.org/zero-waste-definition/> and <https://zwia.org/zwh>

## RFP FEEDBACK

In this author's opinion, informed by 35 years in this field, this "waste to energy" RFP 25-21 needs a lot of work and should probably be completely rewritten, as it is confused and off-track.

Our response covers these following questions and comments:

1. Is this asking for a trash and C&D waste incinerator or a plastics pyrolysis facility?
2. Why is the county trying to import waste from throughout the region?
3. Is this RFP open to anaerobic digestion, possibly as part of a true Zero Waste approach?
4. Where will the ash go? Does the county plan to host a landfill for it as well?
5. Environmental Justice & Civil Rights Act violations
6. Conflicts with state's Solid Waste Plan and climate plans
7. Incineration vs. Landfills
8. Incinerator Health Impacts
9. Zero Waste Solutions

### **1. Is this asking for a trash and C&D waste incinerator or a plastics pyrolysis facility?**

The word "plastics" only appears twice in the body of the RFP. The first time is in the heading for B.4. on page 5, where it is titled "Responsibility for Obtaining Plastics." However, the paragraph that follows says nothing about plastics and talks about municipal solid waste (MSW) and construction and demolition waste (C&D). Both MSW and C&D contain some plastics, but those plastics are mixed in with many other materials.

The second mention of plastics is an out-of-the-blue mention in C.7.b.viii. where it says that a project description should include the "[n]umber of new jobs to be created as a result of the proposed Plastics to Oil project."

Did two proposals get put in a blender? Is this a proposal for a facility to burn MSW and C&D or for a plastics pyrolysis plant? They are very different things with different sizes, different waste inputs, different energy and waste outputs, different scales, and different companies involved.

Plastics pyrolysis (which is where oils would be produced) is a very experimental industry that has been a universal failure. These facilities have not managed to be developed at commercial scale and have failed repeatedly at pilot scales. They cannot operate continuously and they produce very toxic byproducts. In fact, the oils from one plastics pyrolysis project were found to have an astronomical 1-in-4 cancer risk. Chemicals are typically allowed to have up to a one-in-a-million cancer risk. One in four is mind-boggling. The article breaking this story stated:

As production of one of the fuels could emit air pollution that is so toxic, 1 out of 4 people exposed to it over a lifetime could get cancer. "That kind of risk is

obscene,” said Linda Birnbaum, former head of the National Institute of Environmental Health Sciences. “You can’t let that get out.”<sup>2,3</sup>

Plastics pyrolysis has been marketed as “chemical recycling” – a technology that is accompanied by a lot of “greenwashing” and deceptive claims, alongside a very troubling track record. Some of this is described in reports by NRDC, available at <https://www.nrdc.org/resources/chemical-recycling>. One of the plants described in this 2022 NRDC report<sup>4</sup> – Agilyx – has already closed down after just five years of supposedly “successful” operation.<sup>5</sup> Further details on the failures at this and the ten other plastics-to-oil facilities in the U.S. are detailed in the October 2023 report, *Chemical Recycling: A Dangerous Deception*.<sup>6</sup>

The most telling assessment of these technologies is from the waste industry consultants who evaluate and even recommend technologies like pyrolysis to local governments they consult for. While all traditional, major solid waste consulting firms (Arcadis, CDM Smith, Geosyntec, HDR, MSW Consultants, SCS, etc.) tend to be enamored with incinerators, none are bigger cheerleaders for the industry than Gershman, Brickner & Bratton, Inc. (GBB). GBB is the only consulting outfit that joins the incinerator industry players in funding the New York City-based academic research outfit that routinely puts out pro-incinerator academic research (similar to how the tobacco industry became popular for “tobacco science”). They are the go-to outfit to present the state of the “waste-to-energy”<sup>7</sup> industry at solid waste and utility conferences.

In these presentations, GBB typically shows a slide on various “waste-to-energy” technologies and their risks. GBB does not consider there to be any health or environmental risk to any of these technologies, but is presenting to industry audiences about the financial investment risk. In that context, GBB characterizes both gasification and pyrolysis as high-risk investments due to “previous failures at scale” and “no operating experience with large-scale operations in the U.S.”<sup>8</sup> GBB has continuously presented variations of this high-risk assessment for well over a decade, as these technologies are relegated to small-scale demonstration plants that typically fail technically and/or economically. Plants that continue to operate do so by abandoning mixed municipal solid waste and switching to very homogeneous feedstocks.

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<sup>2</sup> <https://www.propublica.org/article/chevron-pascagoula-pollution-future-cancer-risk>

<sup>3</sup> <https://www.theguardian.com/environment/2023/feb/23/climate-friendly-us-program-plastics-fuel-cancer>

<sup>4</sup> <https://www.nrdc.org/sites/default/files/chemical-recycling-greenwashing-incineration-ib.pdf>


<sup>5</sup> <https://environmentamerica.org/oregon/articles/agilyx-the-chemical-recycling-facility-in-tigard-is-closing-its-doors-heres-why-thats-a-good-thing/>

<sup>6</sup> [https://static1.squarespace.com/static/5eda91260bbb7e7a4bf528d8/t/674f56482360216cb1c253c0/1733252686279/10-30-23\\_Chemical-Recycling-Report\\_web.pdf](https://static1.squarespace.com/static/5eda91260bbb7e7a4bf528d8/t/674f56482360216cb1c253c0/1733252686279/10-30-23_Chemical-Recycling-Report_web.pdf)

<sup>7</sup> “Waste-to-energy” is in quotes because it is an unscientific public relations term for waste incineration technologies, and does not literally turn matter into energy, violating the laws of physics, but turns waste into air pollution and toxic ash. See: <https://www.energyjustice.net/incineration/waste-to-energy>

<sup>8</sup> “Waste Conversion Technologies for Minnesota,” GBB presentation to SWANA, October 17, 2017. See slide 30 in <http://gbbinc.com/wp-content/uploads/2017/10/SimmonsRAM-SWANA2017.pdf> See also, slide 43 in “The Latest Updates on Waste-to-Energy and Conversion Technologies; Plus Projects Under Development,” GBB presentation to WasteCon 2012. <http://www.gbbinc.com/speaker/GershmanWASTECON2012.pdf>


Examples from 2012 and 2017 presentations by GBB below. While GBB has a long history of urging communities to explore all “waste-to-energy” technologies, including those they describe as high risk when talking within the industry, various reports from other solid waste consultants continue to this day to dismiss the technology as unproven.




## Technologies and Risk

Source: Gershman, Brickner & Bratton, Inc. August 2012

Alternative	Risks/Liability	Risk Summary
Mass Burn/WaterWall	Proven commercial technology	Very Low
Mass Burn/Modular	Proven commercial technology	Low
RDF/ Dedicated Boiler	Proven commercial technology	Low
RDF/Fluid Bed	Proven technology; limited U.S. commercial experience	Moderate to Low
Anaerobic Digestion	Proven technology; limited U.S. commercial experience	Moderate to Low
Mixed-Waste Composting	Previous large failures; No large-scale commercially viable plants in operation; subject to scale-up issues	Moderate to high
Pyrolysis	Previous failures at scale, uncertain commercial potential; no operating experience with large - scale operations	High
Gasification	Limited operating experience at only small scale; subject to scale-up issues	High
Chemical Decomposition/ Depolymerization	Technology under development; not a commercial option at this time	High




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## Conversion Technologies have Different Risk Profiles

Alternative	Risks/Liability	Risk Summary
Processing for Recyclables and Fuel	Proven commercial technology	Low
Composting	Proven commercial technology	Low
Mass Burn Combustion	Proven commercial technology	Low
RDF Combustion	Proven technology; limited U.S. commercial experience	Moderate to Low
Anaerobic Digestion	Proven technology; limited U.S. commercial experience	Moderate to Low
Pyrolysis and Gasification	Previous failures at scale; no operating experience with large -scale operations in the U.S.; full-scale demonstrations nearing operation	High



Source: Gershman, Brickner & Bratton, Inc. 2017

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SCS Engineers and Arcadis, in their consulting for Broward County, Florida, describes pyrolysis as “emerging” technology, not as “commercially proven,” in a report just released this month:<sup>9</sup>

Commercially Proven	Emerging	Developing
Mass Burn Combustion	Gasification	Plasma Arc
Refuse-Derived Fuel Combustion	Pyrolysis	Plasma Arc/Gasification
		Pyrolysis/Gasification

Similar consulting reports for cities and counties throughout the nation have been reflecting this reality for many years now.

We see communities typically spend money on consultants to evaluate gasification and other “waste-to-energy” technologies just to ultimately throw up their hands and return to landfilling. In 2011, Prince George’s County, Maryland hired GBB to review alternatives to landfilling. After extensive analysis of options including municipal solid waste combustion, gasification, waste-to-fuels, and mixed waste processing, GBB narrowed the list of qualified vendors from 16 to seven before Prince George’s County abandoned all of them in 2016 in favor of a plan to extend the life of its landfill and adopt zero waste measures. Vendors with gasification technologies didn’t make the short-list of seven.

In 2014, the world’s largest waste corporation, Waste Management, Inc., sold off its investments in gasification, pyrolysis and other waste-to-fuels companies.<sup>10</sup>

In Sullivan County’s Local Solid Waste Management Plan, consultants Cornerstone PLLC conclude that plastics pyrolysis would be too costly because the county does not produce enough plastics to support even a pilot-scale facility like Agilyx, which the plan specifically references.<sup>11</sup> Agilyx is the company whose Tigard, Oregon plant closed down after just five years. The plant, which only took Styrofoam, closed in April 2024, a few months before the Sullivan County LSWMP was released for public comment, referencing the pyrolysis plant as if it’s still operating.

So, if “plastics-to-oil” is the real objective, we highly recommend that Sullivan County spend some more time looking into the track record of that industry. It has been in “pilot” stages and has not been ready for commercial operation for multiple decades now.

<sup>9</sup> Solid Waste Authority of Broward County, “Regional Solid Waste and Recycling Master Plan, Appendix M: White Paper – Innovative and Future Technologies,” Aug. 2025, p.31, Table 6. [https://browardswa.org/wp-content/uploads/2025/08/Task-13-Final-Regional-Solid-Waste-and-Recycling-Master-Plan\\_080325-1.pdf#page=813](https://browardswa.org/wp-content/uploads/2025/08/Task-13-Final-Regional-Solid-Waste-and-Recycling-Master-Plan_080325-1.pdf#page=813)

<sup>10</sup> Big Waste Hauler Rethinks Startups," Wall Street Journal, Jan 3, 2014.

<sup>11</sup> Sullivan County Local Solid Waste Management Plan, July 2024. <https://www.sullivanny.gov/sites/default/files/departments/DPW/SolidWaste/Sullivan%20County%20LSWMP%202024.pdf#page=90>

If the county's objective is to have Reworld (Covanta) build a large-scale mass burn trash incinerator, as they have in Hempstead, NY, one must look at the track record of this industry as well.

Despite hundreds of attempts, there have been ZERO mass burn trash incinerators sited and built at a new site in the U.S. since 1995. A handful have been expanded or rebuilt, but far more have closed down. In fact, 54 incinerators have closed since 2000 while only one new one was built – adjacent to an existing one at a site in Florida. The success rate of building new trash incinerators in the U.S. is literally 0%. There is no chance that Sullivan County, of all places, will overcome the inevitable community opposition, litigation, and financial and regulatory hurdles. We say this having intimate knowledge of community opposition to this industry over the past 35 years, and also being committed to ensure that no incinerator is developed anywhere in the U.S., including in Sullivan County. Yes, many counties have wasted years of time and millions of dollars pursuing incinerators have they have never built, but none have pulled off a new siting of one in three decades.

Even if incinerators were the magical “waste-to-energy,” “energy from waste,” “thermomechanical treatment facilities” that Reworld has rebranded them, as if they are sustainable, non-polluting alternatives to landfills, they are still so unpopular that the county will not be able to build one, and it's only a matter of how much the county wants to waste time and money and some people's political careers before learning that this is not the path forward.

In reality, trash incinerators are the most expensive and polluting way to manage waste or to make energy. As discussed in sections 7 and 8 below, incineration – and landfilling the resulting ash – is worse than simply landfilling trash, no matter how far away diesel trucks have to cart the waste to a landfill. A new incinerator, built under the most modern standards that aren't even finalized yet, would easily be the largest industrial air polluter in Sullivan County, and probably the largest within several counties. The air pollutants will contribute to a myriad of health impacts, including cancers, asthma attacks, heart attacks, learning disabilities, birth defects and more.

It is our hope that, after evaluating these comments, Sullivan County will conclude that incineration (“waste-to-energy”) and landfilling incinerator ash is not the way to go and is not actually preferable to landfilling waste without burning it first. Should the county decide to pursue the less harmful disposal option – direct landfilling – there is model language that could be used in an RFP in our recent comments to the City of Philadelphia. See pages 14-20 in: <https://phillyzerowaste.org/2025RFI-EJN.pdf>

To avoid being subject to out-of-county landfills, though, ideally, the county would build its own landfill or collaborate with nearby counties on a regional landfill that is publicly owned, avoiding the need to site an ash landfill AND an incinerator, and avoiding the increased cost, pollution, and controversy.

## **2. Why is the county trying to import waste from throughout the region?**

The draft RFP admits that the plan is “to provide a regional approach to waste instead of long haul trucking.” Well, if no new landfill is also built for the ash, there will still be long haul trucking of toxic ash, but why is the county trying to import and burn waste from other counties? Most counties that develop their own waste infrastructure do so for their own needs, not trying to become a magnet to attract trash from surrounding counties.

A landfill is necessary even if there is an incinerator. With a publicly owned landfill, the county can control its own waste destiny and can build a small one and fill it slowly with its own waste. However, with an incinerator, no one will build at the tiny scale needed for a small county like Sullivan. Choosing incineration is what requires a much larger capacity, necessitating the “regional” approach of importing other counties’ trash.

It is evident from the “contracts contemplated” section of the RFP that the county expects to be a business partner with an incinerator corporation (likely Reworld), thinking that this will be a profitable venture for the county. A sincere, independent investigation into the trustworthiness of Reworld and their business practices would be prudent. Their lawyers are more experienced in this than the county’s attorneys would be, and the county could easily find itself in bad place financially in the process.

For example, unlike landfills, incinerators need to be fed a certain amount of waste to be profitable. Incinerator contracts typically contain “put or pay” clauses that have the local government promising a certain amount of waste and having to pay, anyway, if they fall short. In the 1990s, 29 towns in New Hampshire filed for bankruptcy due to their incinerator contracts with put-or-pay clauses with a small incinerator in Claremont. The court made them pay up and denied their bankruptcy claims. Should Sullivan County lose population, succeed in waste reduction, or just find that its waste stream gets lighter as products are packaged with less packaging (perhaps due, in part, to pending legislation to reduce packaging), the county could end up owing the incinerator company money for any shortfall in waste. Some communities with incinerators have found themselves paying higher prices than outlying areas because the incinerator operator lowers their prices for other communities where they must compete with cheaper landfills. The host community ends up making up for these discounts for other communities by paying the higher prices.

The draft RFP has the county promising to “assist the successful developer in obtaining waste generated within Sullivan County and to develop agreements with surrounding counties. Sullivan County collects nearly 100,000 tons of MSW and C&D annually. The County will give the selected developer rights to all such materials delivered to the County’s 91 Landfill Drive Facility.” Ulster County is not interested in incineration, leaving only two “surrounding” New York Counties to shop for waste to feed the incinerator – and perhaps two neighboring Pennsylvania Counties, though these counties already have cheaper options with nearby landfills. This draft RFP language promises “all” of the 100,000 tons per year of MSW and C&D,

which is a great way to kill off any future programs to reduce, reuse, recycle, or compost materials in the county.

**3. Is this RFP open to anaerobic digestion, possibly as part of a true Zero Waste approach?**

The only so-called “waste-to-energy” technology that is considered acceptable by environmentalists and Zero Waste practitioners is anaerobic digestion (AD). AD is essentially composting organic material in a vessel where methane gases can be collected and burned for energy (or made into chemical feedstocks). This can be an appropriate part of a Zero Waste system if used for sewage sludge and the organic fraction of municipal solid waste after source separation of food scraps and yard waste (which should go to aerobic composting, not anaerobic digestion), and if the digested material is subsequently landfilled (it is too contaminated for use as soil amendment). The gas can best be used for hard-to-electrify sectors such as industrial heating needs or even aviation fuel. If the RFP is going to be issued, it would be wise to limit proposals to this application, which some emerging companies have been working to develop. So long as the resulting waste is placed in a landfill and not burned first, this is the best approach for managing residuals that remain while the county works to reduce waste. Doing so reduces the weight and volume of waste, reducing transportation costs, and ensures that the landfill is not so gassy, stinky and leaky as landfills typically are. See section 9.M. below for more details on this solution.

**4. Where will the ash go? Does the county plan to host a landfill for it as well?**

Ash recycling into roads is failed technology. Schemes to “recycle” toxic incinerator ash into roads have failed across the country, in Tennessee, Maine, Oregon, York County, Pennsylvania – and most recently, Bucks County, Pennsylvania. That plant, owned and operated by Reworld (Covanta) removes metals from trash incinerator ash, and used to provide the remaining ash to a nearby asphalt company to use in roads. They stopped doing this in September 2022 and were going to restart in 2023, but never did. That project apparently failed, and ash is now going back to landfills, anyway.

Ash recycling is a fantasy that has failed repeatedly. Assuming that Sullivan County won’t be the first place to make this work on a sustained basis, will the county plan to build a landfill to accept the ash? If not, where would the toxic ash go? Any RFP for “waste-to-energy” has to address where the ash will go. For every 100 tons burned, about 30 tons of ash are produced and must be landfilled, since the county cannot count on claims that ash can be recycled, even if that were somehow appropriate and safe.

Reworld was recently fined \$878,000 by the New York Department of Environmental Conservation for having failed to mix their fly and bottom ash properly at their Hempstead plant, likely resulting in their having illegally dumped hazardous incinerator ash in a New York landfill not permitted to take hazardous waste. See: <https://dec.ny.gov/news/press-releases/2025/2/dec-orders-reworld-hempstead-to-pay-878500-in-penalties-and->

[environmental-benefit-funds](#) and <https://law.justia.com/cases/new-york/other-courts/2024/2024-ny-slip-op-24080.html> The company also has a decades-long track record of thousands of violations.

The incineration industry claims that their ash is safe because it usually passes EPA's Toxicity Characteristic Leaching Procedure (TCLP) test for whether it's legally "hazardous." This "not legally hazardous" result is often misconstrued to mean that ash is safe, non-toxic, or biologically inert in all contexts.

EPA's test is based solely on the content of liquids that leach out of ash during an 18-hour laboratory test, at a certain pH where toxic chemicals like lead and cadmium do not leach out. Scientific experts have documented that this does not represent real-life conditions and that actual leaching of toxic chemicals from incinerator ash happens in real life.

A TCLP determination of whether ash must be handled as hazardous waste does not account for exposures via inhalation, ingestion, or dermal (skin) contact, as EPA now admits on their [website](#) with the December 2024 addition of a new frequently asked question (FAQ).

These exposures are possible if ash blows off of trucks during transportation, blows into the air when dumped at a landfill, blows off of the surface of a landfill (which is more possible where ash is used as daily cover material), is kicked up by trucks where ash is used to make internal roads in a landfill, or where workers handle ash to recycle it into roads or other reuse applications where it can erode or leach over time outside of a lined landfill with tiny toxic particles exposing people.

EPA's statement says:

**6. What risks are associated with management, disposal or reuse of MSW incinerator ash?**

If MSW combustor ash exceeds the toxicity characteristic regulatory limit at Title 40 of the Code of Federal Regulations Section 261.24 using the Toxicity Characteristic Leaching Procedure (TCLP), it is identified as a hazardous waste due to the risks it poses to groundwater contamination under a worst-case mismanagement scenario. Non-hazardous MSW combustor ash may still present potential risks via other pathways, such as through inhalation, ingestion, or dermal (skin) contact. These risks should also be considered during transport, disposal and/or beneficial reuse of the ash as a non-hazardous secondary material.

Communities are being told that municipal solid waste incinerator ash is "non-toxic" and "[inert](#)" as a means to dismiss concerns about toxicity of ash. This is a misinterpretation of the results of the TCLP test. EPA's statement now makes that clear. Incinerator ash was never "non-toxic" or biologically inert.

In a meeting we had on February 23, 2022 with key staff at the U.S. Environmental Protection Agency's Office of Land and Emergency Management which handles solid waste, EPA staff confirmed that the TCLP test is based solely on what leaches out of ash, not on exposure pathways involving inhalation or ingestion. The December 2024 statement on their website affirms this publicly.

This is a concern because there are exposure pathways not being considered. Incinerator workers are the first to be exposed. I've toured incinerators where you can write your name in the layer of ash dust that has settled and built up on the floor, yet workers are not wearing respiratory protection. There are anecdotes from communities where ash has blown off of trucks. When ash is dumped from trucks on the surface of landfills, there can be clouds of ash dust blowing away during that activity, which has been video documented by workers in one case I've seen. Incinerator ash is typically used as alternative daily cover material at landfills, which risks ash blowing into communities.<sup>12</sup> There are several examples of this that we're aware of. One – at the City of Baltimore's Quarantine Road Landfill – was noticed by the Maryland Department of the Environment, and the city was ordered in 2010 to stop the practice since ash was blowing off-site (we believe that they have continued the practice). See the bottom of page 2 in this [memo](#). Off-site wind-blown ash has also been documented at an ash monofill in New England. Some landfills, like Old Dominion Landfill in Monroese (Henrico County), VA, use ash to build internal roads in landfills where trucks drive over the ash and can kick it up and track it off-site. The potentials for inhalation and ingestion are significant.

Incinerator ash used to be considered to be categorically non-hazardous by EPA until a May 1994 Supreme Court decision that required that, if ash tests hazardous, it must be regulated as hazardous waste. Testing with the EP Tox test used to find fly ash hazardous 91% percent of the time based on lead and 97% of the time based on cadmium; bottom ash 36% of the time based on lead and 2% of the time based on cadmium; and combined ash 40% of the time based on lead and 14% of the time based on cadmium. Find more on the legal history [here](#), as well as additional history of the Supreme Court ruling, testing changes, the above results, and how EPA's TCLP test was chemically designed to prevent a hazardous waste designation [here](#).

In the wake of the Supreme Court ruling, EPA changed the test method to TCLP, where the testing now takes place at a higher pH where ash doesn't test hazardous. The mixing of fly and bottom ash prior to testing also enables the industry to dilute the toxicity of the fly ash while the lime in fly ash where lime scrubbers are used helps protect the bottom ash by increasing the pH. Lead and cadmium have U-shaped solubility curves where they'll leach at a high or low pH, but not in the range where the test is done. In long-term landfill conditions, changing pH can cause ash to leach lead, cadmium, arsenic, and probably other toxic chemicals. A [2004 study](#)

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<sup>12</sup> Historically, landfills are required to use soil as daily cover at the end of each day to prevent waste blowing into communities at night. However, the industry has learned that they can save money by not paying to fill their air space with clean soil, and *make* money taking waste in place of soil. The practice of using waste as "alternative daily cover material" (ADCM) has become commonplace, even though it can involve exposing the community to wind-blown incinerator ash or other wastes permitted to be used as ADCM. There are numerous cases of incinerator ash blowing off of landfills when ash is used as cover material for itself.

found that TCLP fails to simulate landfill conditions and underestimates arsenic leaching from ash, stating “[u]p to tenfold greater arsenic concentration is extracted by an actual landfill leachate than by the TCLP.”

## **5. Environmental Justice & Civil Rights Act violations**

Monticello is an environmental justice community, known in New York State as a “disadvantaged community” (DAC). The state’s new environmental justice law makes it much more difficult to site a facility like a waste incinerator in a DAC. It is also a violation of Title VI of the Civil Rights Act of 1964, which prohibits recipients of federal funding from taking actions that have a discriminatory impact (regardless of intent) on racial minorities. This represents additional legal barriers, and litigation will likely ensue if the landfill site is pursued.

## **6. Conflicts with state’s Solid Waste Plan and climate plans**

Locking the county into a contract to send “all” of its MSW and C&D waste to an incinerator will surely run into conflicts with the state’s Solid Waste Management Plan as well as state climate plans and policies, which aim to reduce waste. The county could easily find itself stuck trying to meet state mandates while locked into contracts committing a minimum amount of waste to an incinerator that will also be at risk from the state’s climate regulations because their greenhouse gas emissions will be 65% worse than a coal-fired power plant, as is the case industry-wide.

## **7. Incineration vs. Landfills**

The county’s political leadership seems to believe that incinerators are better for the environment than landfills. This is incorrect.

While waste hierarchies stemming from the U.S. EPA argue that incineration is preferred, top staff with EPA’s Office of Land and Emergency Management admitted to us at the February 23, 2022 meeting mentioned above that the agency has no documentation to back up the placement of incineration (“energy recovery”) above landfilling (“disposal”). In July 2022, EPA placed a disclaimer on their hierarchy, stating that “EPA is now in the process of reviewing the waste hierarchy to determine if potential changes should be made based on the latest available data and information.”<sup>13</sup> This process is not quick, though, and may take a few more years.

Nonetheless, any waste-related RFPs should be informed by the comprehensive climate, health and environmental impact life cycle analysis (LCA) commissioned by the County of Delaware, PA and published in 2023. It is the most recent, relevant, and comprehensive study of incineration vs. landfilling in the region. It specifically looks at the Reworld (Covanta) Delaware Valley trash incinerator in the City of Chester, PA (Delaware County), comparing it to the Rolling Hills Landfill in Berks County, Pennsylvania.

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<sup>13</sup> <https://www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy>

**The results show that incineration (and landfilling ash) is 2.3 times more harmful for health and the environment than using the landfill directly.**

The LCA study was conducted using the most comprehensive LCA tool for waste systems: the Measuring Environmental Benefits Calculator (MEBCalc™) by Sound Resource Management Group.<sup>14</sup> If Sullivan County wants to conduct a new LCA using this model, the county can hire Dr. Jeffrey Morris, the economist and solid waste expert at Sound Resource Management Group who developed the model. His CV is attached.

Unlike other LCA tools, this tool looks at nine different health and environmental criteria, including climate impacts, but also cancer and non-cancer effects of toxic chemicals, impacts on respiratory health from pollutants like nitrogen oxides that trigger asthma attacks, and impacts of particulate matter, such as heart attacks and strokes. The model can also monetize these impacts using accepted standard economic values for the social cost of carbon and other pollutant impacts. This enables the model to present a single chart that can sum up the diverse impacts into a dollar value representing externalized health and environmental costs. These are costs that people pay in medical bills and that society pays in impacts from climate change, premature deaths and many other harms.

The following chart shows the major differences between three common LCA tools for waste disposal systems. The first two are EPA tools: the Waste Reduction Model (WARM) and the Municipal Solid Waste Decision Support Tool (MSW DST). The Measuring Environmental Benefits Calculator (MEBCalc™), used in the Delaware County study and the Montgomery County, MD study also shared below, is the most comprehensive and detailed of the models.

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<sup>14</sup> Measuring Environmental Benefits Calculator (MEBCalc™), Sound Resource Management Group. [srmginc.com/mebcalc/](http://srmginc.com/mebcalc/)

## Life Cycle Analysis (LCA) Characteristics of WARM, MSW DST and MEBCalc™ models

Features	LCA Model		
	WARM	MSW DST	MEBCalc
<u>Impacts included in model</u>			
-Climate change	✓	✓	✓
-Human health (respiratory)		limited	✓
-Human health (toxic chemicals)		limited	✓
-Human health (carcinogens)		limited	✓
-Eutrophication		limited	✓
-Acidification		limited	✓
-Eco-toxicity		limited	✓
-Ozone depletion			✓
-Smog formation		limited	✓
<u>Monetized Environmental Score</u>			✓
<u>Energy Impacts Included</u>	✓	✓	limited
<u># of MSW Materials Included</u>	54	~30	27

Additional Comparison of WARM & MSW DST: H. Scott Matthews (Carnegie Mellon University), Cynthia J. Manson (Industrial Economics, Inc.), *Comparative Analysis of EPA Life Cycle Models: Differences between MSW-DST and WARM in Examining Waste Management Options*, prepared for EPA Office of Resource Conservation and Recovery, Internal Review Draft-Do Not Distribute, 11-12-2009.

Two of the more recent LCA studies that best summarize impacts of incineration vs landfilling are contained in reports done for Montgomery County, MD<sup>15</sup> and Delaware County, PA.<sup>16</sup> They are represented in the summary charts on pages 16-20.

Climate impacts are the largest of the nine evaluated, and the climate impacts of incineration are shown to be worse than landfilling, as other studies have shown as well. The results also show that implementing Delaware County’s Zero Waste Plan has huge environmental and health benefits. The LCA’s also shows that transportation impacts, despite the use of diesel trucks, are very small compared to the impacts of the disposal facilities themselves, and that no reasonable transportation distance to a landfill can justify using incineration within the county, since the transportation impacts do not close the gap between landfilling and incineration. Based on the Maryland analysis (see chart on page 17), trash would need to be hauled via diesel-powered trash transfer trailer to a landfill in California to almost catch up to the emissions from local incinerators.

Montgomery County, MD is working to close their county-owned trash incinerator by September

<sup>15</sup> “Beyond Incineration, Best Waste Management Strategies for Montgomery County, Maryland,” Zero Waste Montgomery County, March 2021. <https://www.energyjustice.net/md/beyond.pdf>

<sup>16</sup> “Delaware County’s Path Toward Zero Waste,” Zero Waste Associates, March 2024. [https://drive.google.com/file/d/1\\_ZEDM\\_z5MifMx2JfRJRvmuKbvVeUafus/](https://drive.google.com/file/d/1_ZEDM_z5MifMx2JfRJRvmuKbvVeUafus/) Find just the LCA portion here: <https://energyjustice.net/incineration/DelcoLCA.pdf>

2026. It is a Reworld-operated facility that is the county’s largest industrial air polluter. Our *Beyond Incineration* report, produced at the request of Montgomery County’s County Executive, Marc Elrich, includes a MEBCalc LCA comparing the county’s incinerator to ten landfill options in PA, VA, and OH. Summary slides from that analysis are on pages 16-17.

Delaware County, PA is working to end its use of the Reworld incinerator in the City of Chester. The LCA study produced for their Zero Waste Plan evaluates incineration vs. landfilling, and also compares the impacts of adopting the Zero Waste Plan. In addition, it includes a sensitivity analysis (see chart on page 10) to examine incineration vs. landfilling under three scenarios of landfill gas capture rates (70%, 30% and 0%). It found that, even if there were no landfill gas capture, the overall health and environmental impacts of incineration would still be greater than those of landfilling. Looking solely at climate impacts, incineration is more harmful than landfilling unless the gas capture rate is under 30%. Gas capture rates are typically assumed to be 75%. While that figure is probably optimistic, it’s reasonable to assume that gas capture rates are not as low as 30%. Summary slides from that analysis are on pages 18-20.<sup>17</sup>

## Cover pages from the two reports containing Life Cycle Assessments of incineration vs. landfilling and Reworld trash incinerators

### Beyond Incineration:

Best Waste Management Strategies for Montgomery County, Maryland

Prioritizing:

- Cost-effectiveness
- Human health & safety
- Climate protection
- Continuous waste reduction

Prepared for:

County Executive Marc Elrich

By: Zero Waste Montgomery County

Underwritten by:

Sugarloaf Citizens' Association  
[www.sugarloafcitizens.org](http://www.sugarloafcitizens.org)



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March 2021

[www.energyjustice.net/md/beyond.pdf](http://www.energyjustice.net/md/beyond.pdf)



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NPS/Michael Cull

Delaware County, Pennsylvania  
 Municipal Waste Management Plan 2023-2033  
 Non-Substantial Revision

Office of Sustainability  
 March 2024



Summary slides on pages 16-17.

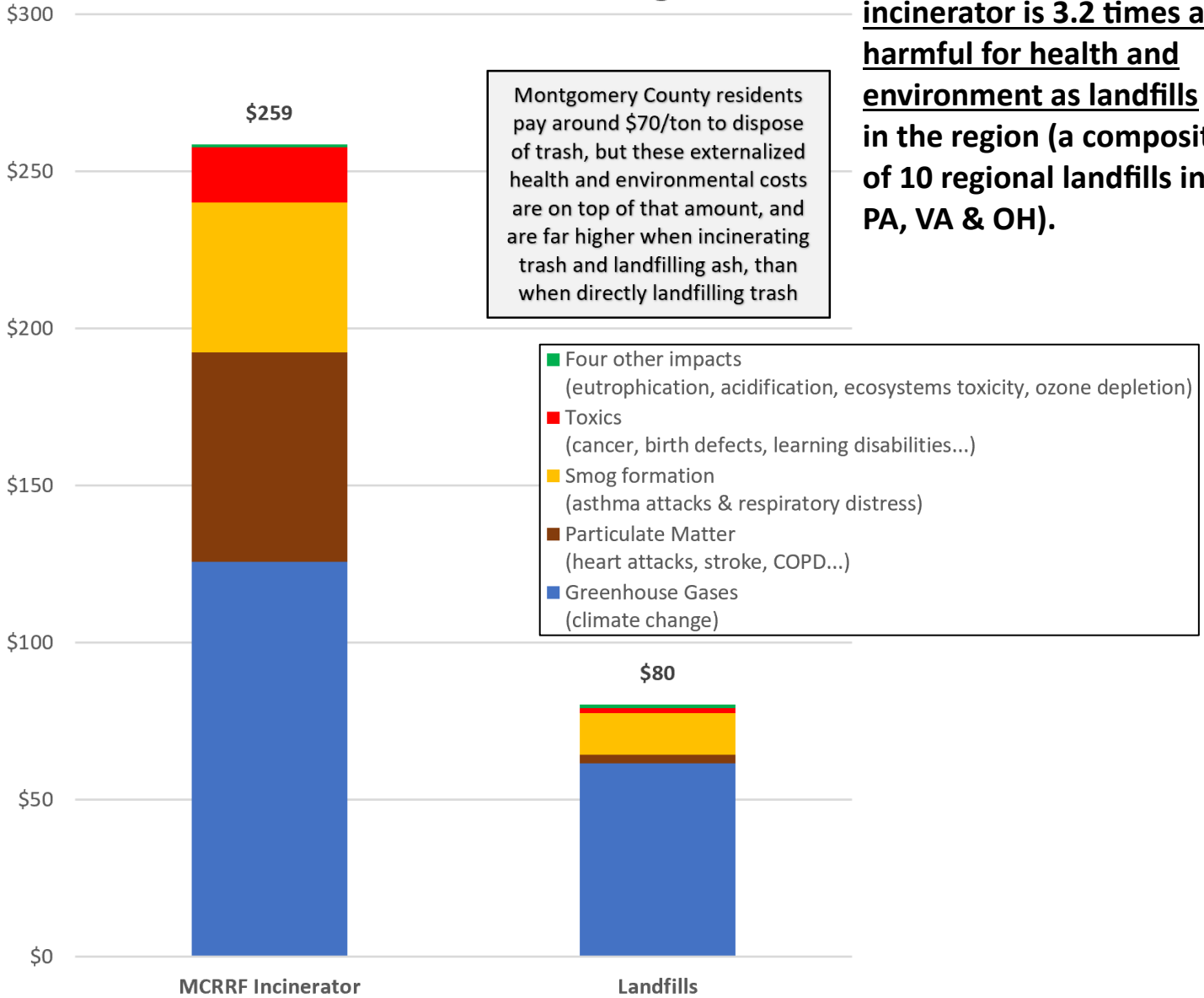
Summary slides on pages 18-20.

<sup>17</sup> Life Cycle Assessment summary slides on the following pages are also available online at <https://energyjustice.net/incineration/LCA.pdf>

# Incineration vs. Landfilling

Health & Environmental Impacts per Ton of Waste Disposed at Montgomery County Trash Incinerator vs. Landfills in the Region

Montgomery County Resource Recovery Facility (MCRRF) trash incinerator is 3.2 times as harmful for health and environment as landfills in the region (a composite of 10 regional landfills in PA, VA & OH).

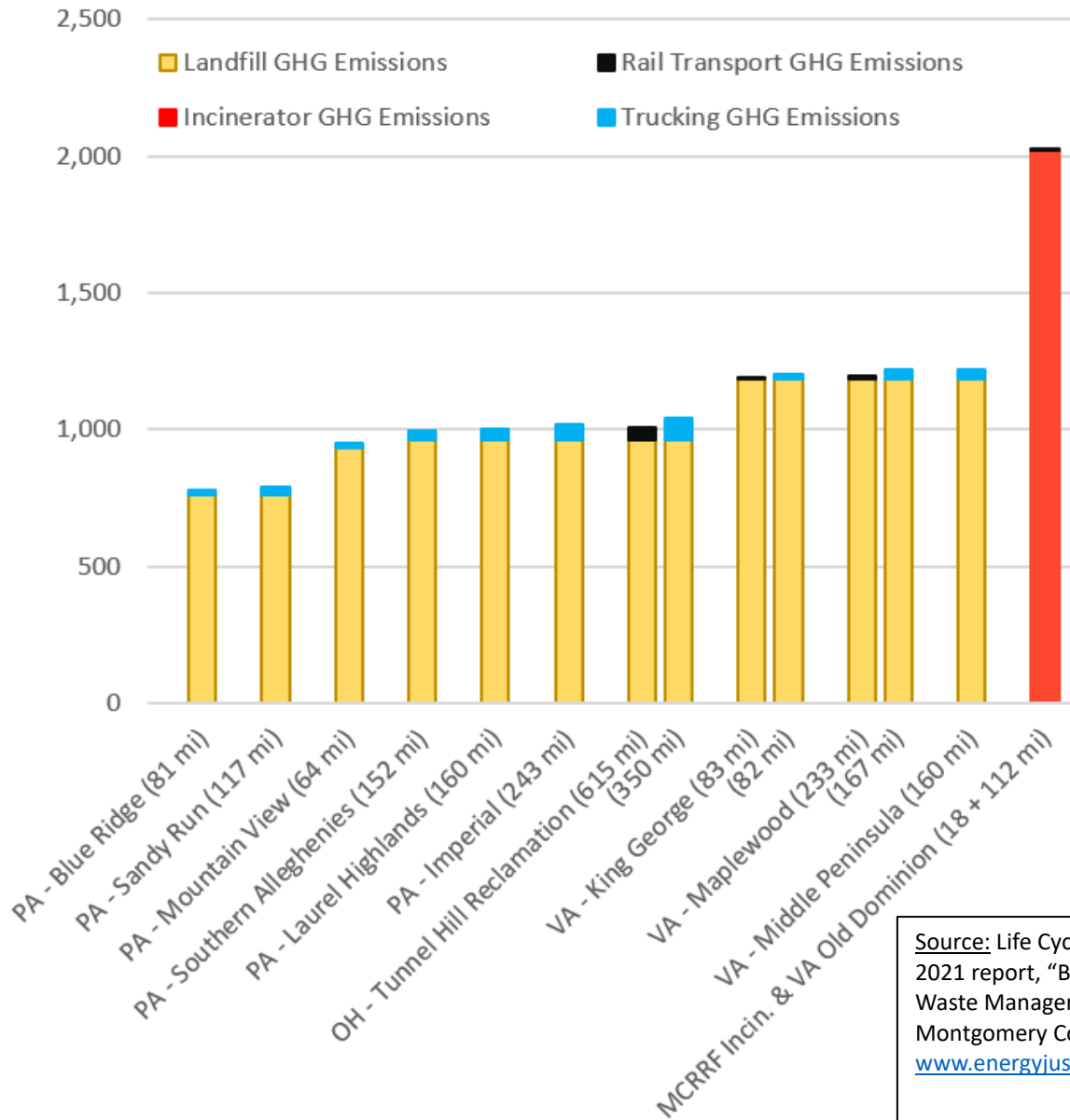


Source: Life Cycle Assessment (LCA) from 2021 report, "Beyond Incineration: Best Waste Management Strategies for Montgomery County, Maryland" [www.energyjustice.net/md/moco](http://www.energyjustice.net/md/moco)

# Transportation Impacts Insignificant

Greenhouse Gas (GHG) Emissions in Carbon Dioxide Equivalents (CO<sub>2</sub>e)

20-year CO<sub>2</sub>e (lbs/ton of waste disposed)



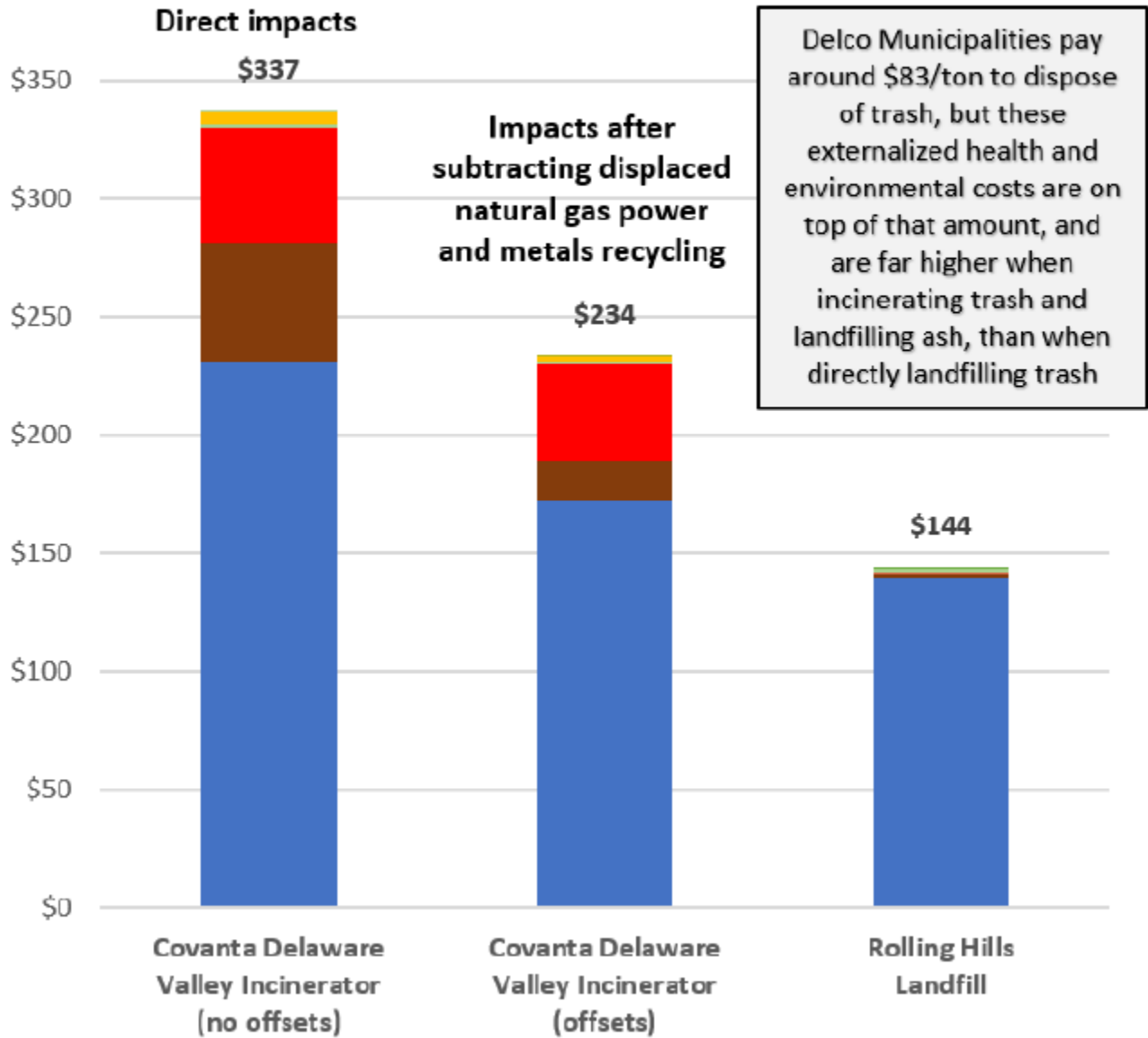
Note: This chart shows greenhouse gas emissions per ton of waste disposed. The “20-year” is a reference to the potency of methane, which is measured in terms of how much more potent it is compared to carbon dioxide. Methane has a global warming potential (GWP) that is over 80 times more potent than CO<sub>2</sub> over a 20-year time frame and close to 30 times more potent over a 100-year time frame. This evaluation uses the 20-year GWP, which makes landfills (yellow) look worse than if measured over 100 years.

Source: Life Cycle Assessment (LCA) from 2021 report, “Beyond Incineration: Best Waste Management Strategies for Montgomery County, Maryland” [www.energyjustice.net/md/moco](http://www.energyjustice.net/md/moco)

**Transportation climate impacts (trucking in blue, rail in black) are minor compared to incineration (red) or landfiling (yellow). No realistic transportation distance can justify incinerating in-county over hauling waste to distant landfills. Even driving a diesel truck across the country to reach a landfill fails to catch up to the impacts of incineration. Similar results are found when looking at pollutants other than GHGs.**

# Incineration vs. Landfilling

Health & Environmental Impacts per Ton of Waste Disposed at Covanta Delaware Valley Incinerator vs. Rolling Hills Landfill



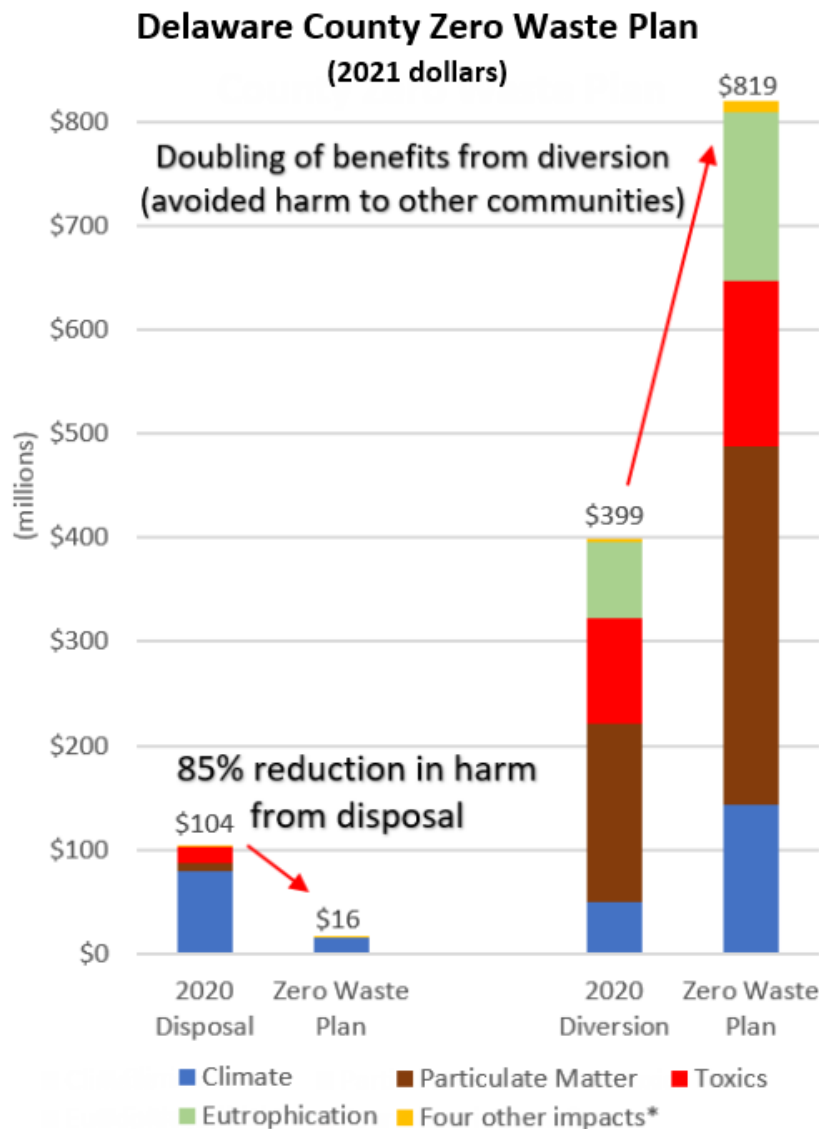
**Incinerating trash at the nation's largest trash incinerator and landfilling its ash is 2.3 times as harmful as directly landfilling trash at the same landfill.**

- Four other impacts (eutrophication, acidification, ecosystems toxicity, ozone depletion)
- Toxics (cancer, birth defects, learning disabilities...)
- Smog formation (asthma attacks & respiratory distress)
- Particulate Matter (heart attacks, stroke, COPD...)
- Greenhouse Gases (climate change)

**Source:** Life Cycle Assessment (LCA) from 2024 report, "Delaware County's Path Toward Zero Waste," Zero Waste Associates, March 2024. [www.energyjustice.net/incineration/DelcoLCA.pdf](http://www.energyjustice.net/incineration/DelcoLCA.pdf)

# Impacts of Adopting Zero Waste Plan

## Annual Health and Environmental Impacts of Implementing



\* Acidification, ecosystems toxicity, ozone depletion, and smog formation

**85% reduction of disposal impacts from a combination of diverting materials from disposal, and switching from incineration (and landfilling ash) to direct use of landfilling.**

Note: This chart combines Figure S1 / Figure 1 and Figure S4 / Figure 5, but all expressed in positive dollars. Table A1, A2, B1, and B2 provide the raw numbers behind this chart.

While the previous chart looked at externalized health and environmental costs per ton, this looks at the entire impact of Delaware County, Pennsylvania's waste system (all tons in a year), showing \$104 million dollars of health and environmental costs per year.

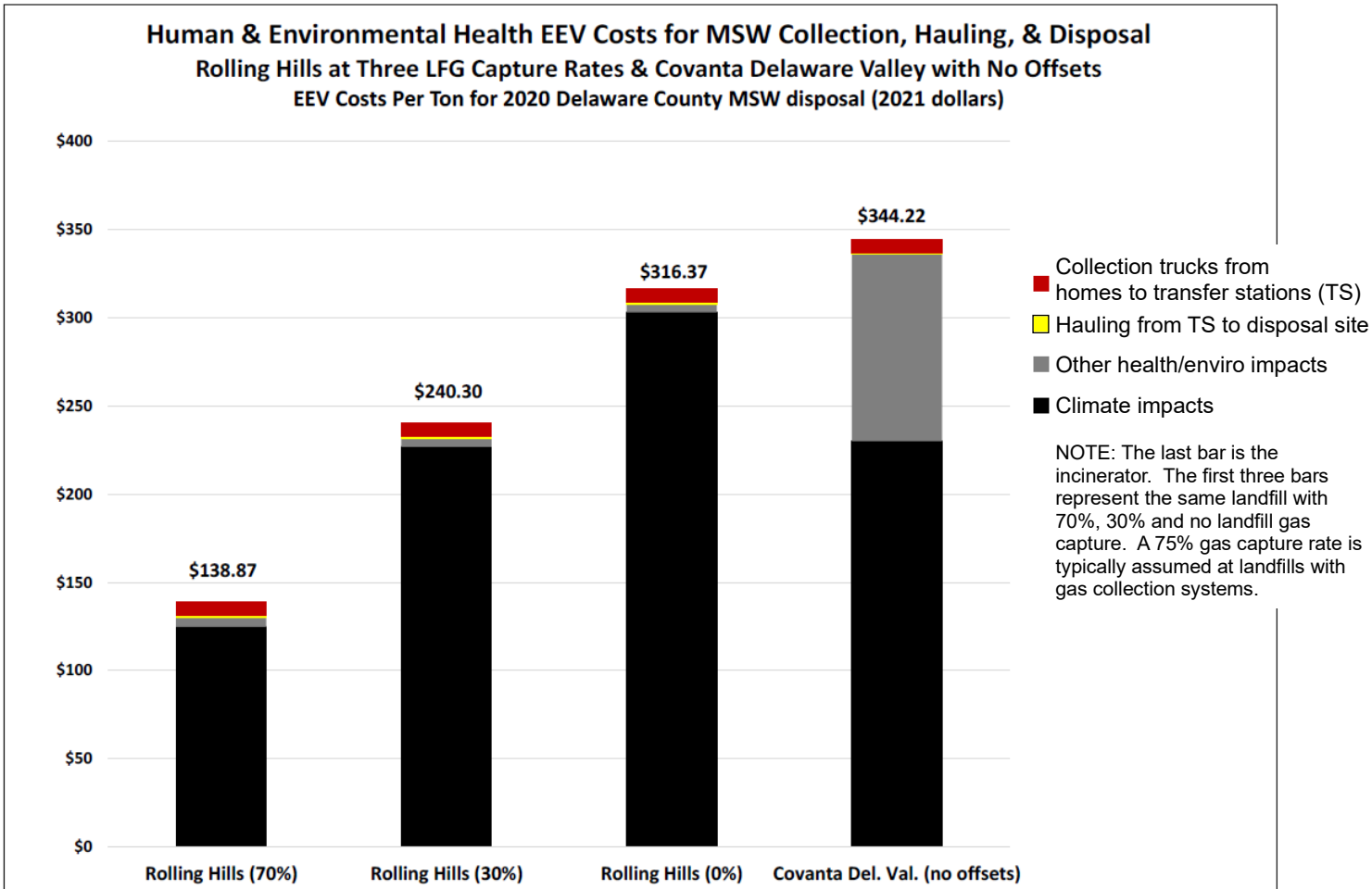
Adopting the Zero Waste Plan (ending incineration and reducing waste) cuts those harms by 85%, while the benefits (avoided harms) that already happen from current recycling efforts (about \$400 million a year) would be doubled.

Examples of these avoided harms are not needing to log or mine new raw materials because we're now consuming less, reusing/repairing, recycling and composting.

Source: Life Cycle Assessment (LCA) from 2024 report, "Delaware County's Path Toward Zero Waste," Zero Waste Associates, March 2024. [www.energyjustice.net/incineration/DelcoLCA.pdf](http://www.energyjustice.net/incineration/DelcoLCA.pdf)

# Incineration worse than the worst landfills; Transportation impacts insignificant

Yellow lines show difference between hauling from two transfer stations 3 and 13 miles from the incinerator (last bar) vs. trucking all trash to landfill 60 miles away (first 3 bars)



Two notable lessons from this chart. First, it includes a sensitivity analysis to see how much the landfill gas capture rate matters. Even with zero gas capture (all leaking out), the overall impacts of incineration are worse than landfilling because the other impacts of incineration – asthma, cancer, heart attacks, etc. (grey) – add up to significant harm on top of the climate impacts (black). If only looking at climate impacts, landfill gas capture rate would have to be as low as 30% to be comparable to incineration.

Source: Life Cycle Assessment (LCA) from 2024 report, “Delaware County’s Path Toward Zero Waste,” Zero Waste Associates, March 2024. [www.energyjustice.net/incineration/DelcoLCA.pdf](http://www.energyjustice.net/incineration/DelcoLCA.pdf)

The collection trucks (red) are the same in all scenarios. The greater hauling distance to landfill (yellow) in the three landfill scenarios is more than the nearby incinerator, but so insignificant that trucking emissions cannot justify a preference for incinerating in-county vs. trucking to landfills.

## 8. Incinerator Health Impacts

Reworld and other incinerator apologists claim that studies show that there are no health impacts from trash incinerators, especially “modern” ones. In fact, plenty of studies have found health impacts connected to proximity to trash incinerators, including cancers, heart disease, birth defects, respiratory problems, and other health impacts. Most of these studies are from Europe, though some have been conducted in the U.S.

This is explored in the July 2025 report we completed for the City of Miramar, Florida, debunking industry consultants’ arguments that the studies consistently show there is nothing to worry about. See: <https://www.energyjustice.net/fl/health.pdf> This report is also attached for your review. A shorter 3-pager containing explanation on why it can be hard for studies to find health impacts, is available here: <https://energyjustice.net/incineration/healthstudies.pdf> (see page 2).

Even the most modern, new trash incinerators, as some South Florida counties are proposing (with much opposition) would be very significant polluters. The following three reports examine the nation’s newest “cleanest and greenest” incinerator and find many mishaps and problems, and when modeling out a large new incinerator based on their actual emissions (and accounting for further reductions due to new regulations), it still turned out that these new incinerators would be among the largest industrial air polluters in their (heavily industrialized) counties. See:

[Operating Track Record of the “Cleanest and Greenest” Trash Incinerator in the United States](#) documenting 176 incidents at the Palm Beach Renewable Energy Facility 2 trash incinerator in its first decade of operation. This is not comprehensive and the review of DEP air files did not even touch the inspection reports. This is the model incinerator that Miami-Dade County looks to emulate.

<https://energyjustice.net/fl/wpb2history.pdf>

[Quantitative Analysis of Projected Emissions from Proposed Miami-Dade County Trash Incinerator](#) showing that the proposed new 4,000 ton/day trash incinerator would be among the largest industrial air polluters in the county. The analysis uses actual emissions data from the nation’s newest trash incinerator (Palm Beach Renewable Energy Facility 2) and models emissions from a new incinerator at the larger size sought by Miami-Dade County, and adjusting two pollutants downward to reflect adoption of EPA’s proposed Large Municipal Waste Combustor regulations for new facilities. Even with a new incinerator meeting these requirements, making it the cleanest in the nation, it would rank among the largest industrial air polluters in Miami-Dade County, where other major industrial polluters already operate.

<https://energyjustice.net/fl/mdcincin.pdf>

Expanding on the previous report, we were commissioned by the Sierra Club Loxahatchee Group to produce a similar and more thorough report on the pollution levels to be expected from the new incinerator planned by Palm Beach County, Florida to replace the older of the two they

currently have. See:

**[It's Not Green: New Trash Incinerators in Palm Beach County are Expensive Major Air Polluters](#)**

showing that a modern new incinerator (50-100% larger than the old “REF1” incinerator it would replace) would be among the largest industrial air polluters in the county, even if built under the proposed new standards.

<https://energyjustice.net/fl/pbcincin.pdf>

## **9. Zero Waste Solutions**

We recommend following the Zero Waste Hierarchy, as codified by the Zero Waste International Alliance.<sup>18</sup> County staff could even get trained and certified by Zero Waste USA<sup>19</sup> and/or GBCI's TRUE Zero Waste certification,<sup>20</sup> for help understanding how to implement and evaluate waste systems with Zero Waste methodologies.

The Zero Waste Hierarchy and the internationally peer-reviewed definition of Zero Waste explicitly reject incineration technologies, based on the understanding that these technologies are far more harmful than landfilling. After focusing on redesign, reduction, reuse, recycling, and composting, the Zero Waste Hierarchy recommends a material recovery and biological treatment (MRBT) system be used prior to landfilling residuals. This is backed up by a MEBCalc life cycle analysis study showing this back-end process to be the least harmful compared to incineration or conventional landfilling.<sup>21</sup>

Following the Zero Waste framework also informs other waste management practices, such as appropriate use of anaerobic digestion. Digesters should be used for contaminated waste streams that belong in a landfill like sewage sludge and the organic fraction of mixed municipal waste. This is to biologically stabilize the waste prior to landfilling, to keep landfills from being gassy and stinky. It is not the best option for relatively clean feedstocks like source separated food scraps and yard waste, which should be aerobically composted and returned to the soil.<sup>22</sup>

The county could also look at other Zero Waste Plans that have been developed for cities and counties. There are leading Zero Waste consultants like Zero Waste Associates<sup>23</sup> who can be hired to develop a real Zero Waste Plan for the county.

To obtain free advice that follows the Zero Waste Hierarchy, the county can study Zero Waste Plans that have been developed for other cities and counties.

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<sup>18</sup> <https://zwia.org/zwih>

<sup>19</sup> <https://zerowasteusa.org/education/>

<sup>20</sup> <https://true.gbci.org>

<sup>21</sup> <https://ecocycle.org/content/uploads/2023/02/Report-Zero-Waste-System-Leftovers.pdf>

<sup>22</sup> See <https://zwia.org/composting-and-anaerobic-digestion-policy/> and <http://www.energyjustice.net/digesters>

<sup>23</sup> <https://zerowasteassociates.com/> (find their contact info at the end of the video on the main page)

Here are some examples of model plans and programs:

- [Delaware County, Pennsylvania](#)
- [Montgomery County, Maryland](#)
- [Washington, DC](#)
- [Austin, Texas](#)
- [Alameda County, California](#)
- [San Francisco, California](#)

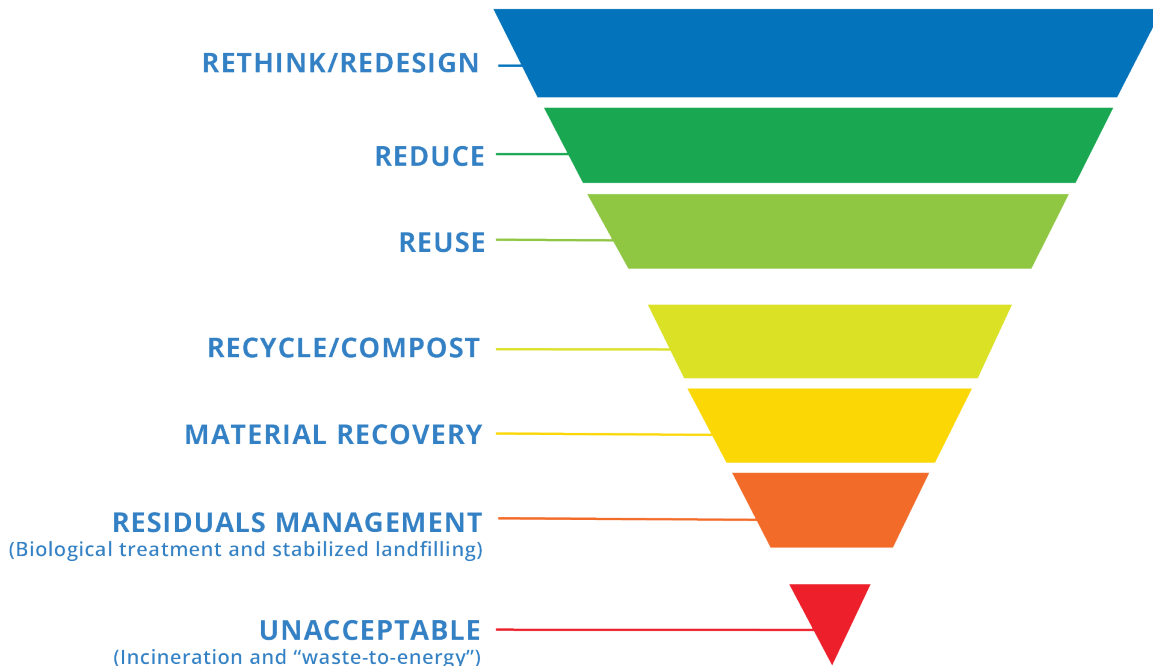
The following is an outline of Zero Waste strategies that the county could implement to dramatically reduce waste and the resulting environmental impacts, while creating local jobs and revenue, and saving on disposal costs.

**A. Formally adopt the Zero Waste Definition and Zero Waste Hierarchy as guiding principles for Department of Sanitation policy and contracts.**

Zero Waste: The conservation of all resources by means of responsible production, consumption, reuse, and recovery of all products, packaging, and materials without burning them and with no discharges to land, water, or air that threaten the environment or human health.

## THE ZERO WASTE HIERARCHY 8.1

For detailed version visit [www.zwia.org/zwh](http://www.zwia.org/zwh)



**B. Get staff educated on Zero Waste strategies.** Have county staff get informed and trained in Zero Waste through as many of the opportunities below as possible:

- a. Review Zero Waste Plans from other cities and counties (see links above).
- b. Have staff spend time watching the presentations in the Connecticut Coalition for Sustainable Materials Management webinar series from a few years ago. Links to the videos are compiled [here](#).
- c. Attend Zero Waste USA's Zero Waste Associates Course.<sup>24</sup>
- d. Invite presentations from Zero Waste experts and open them to the community. Include:
  - i. Kristen Brown at [Waste Zero](#) and Lisa Skumatz at [SERA, Inc.](#) (pay as you throw experts)
  - ii. Brenda Platt at [Institute for Local Self-Reliance](#) (national composting expert)
  - iii. Ruth Abbe at [Zero Waste USA](#) (author of the Delaware County, PA and Montgomery County, MD Zero Waste plans)
  - iv. [Sara Badiali](#) (deconstruction expert in Portland, OR)
  - v. Program administrators for the [San Francisco Environment Department](#), the [Oakland, CA recycling department](#), or the [Alameda County, CA Stop Waste agency](#).

**C. Adopt unit-based pricing (a.k.a. “pay as you throw”)**

Zero Waste strategies are capable of achieving deep reductions in waste generation. Unit-based pricing (UBP) or utility pricing is better known as “Pay as You Throw” (PAYT), but many have tried to rename it to not start with “pay” – calling it “Save as You Throw” (SAYT), or even more exotic acronyms like Save Money and Reduce Trash (SMART) and Fair Trash Reduction (FUTURE).

**Unit-based pricing has proven to be the single most effective and cost-effective way to rapidly reduce waste.**<sup>25,26</sup> When we pay for utilities like electricity, water, or gas, we pay based on our usage. However, with trash, your neighbor could put out ten bags a week and you can put out one, yet you both pay the same amount. There is no incentive to reduce waste. Setting rates on a per-bag or per-container basis results in real waste reductions and cost savings for residents.

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<sup>24</sup> <https://zerowasteusa.org/education/>

<sup>25</sup> PayAsYouThrow.org, The Recycling Foundation. [www.payasyouthrow.org](http://www.payasyouthrow.org); on effectiveness see [Skumatz, note 30 infra](#), p.2, slide 6.

<sup>26</sup> Lisa Skumatz, “PAYT/SAYT – Pros, Cons, and How it Can Work,” Presentation to Zero Waste Task Force, Feb. 13, 2019. <https://web.archive.org/web/20231117041307/https://www.montgomerycountymd.gov/SWS/Resources/Files/master-plan/pay-as-you-throw-sera.pdf> See upper right slide on page 2.

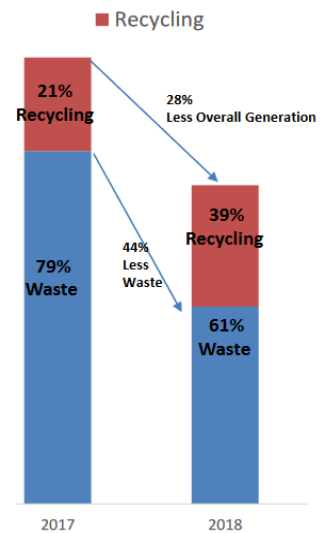
Over 10,000 communities use this system. Connecticut officials recently announced a serious push for SAYT as the state prepares for the closure of its second largest waste incinerator.<sup>27</sup> **SAYT has the capability to almost immediately reduce waste generation by an average of 44%, with about half of the savings coming from behavior changes resulting in source reduction and reuse** (higher on the Zero Waste Hierarchy), representing material that does not even have to be removed from the curb to be composted or recycled. When combining SAYT with curbside composting collection, the average waste reduction reaches 70%.<sup>28</sup>

Two experts in unit-based pricing briefed Montgomery County’s Zero Waste Task Force in February 2019.<sup>29,30</sup> Additional presentations by experts on the topic are available via the state of Connecticut.<sup>31</sup>

The Sanford, Maine example is particularly powerful. The town adopted UBP and saw the typical drop of waste generation by nearly half. One resident, who didn’t like it and who had just won the lottery, campaigned to repeal it. The town did, and waste generation jumped back up. A few years later, when he moved out of town and the town decided to restart the program, waste generation dropped again. See the lower right chart on the following page.

Kristen Brown at [Waste Zero](#) and Lisa Skumatz at [SERA, Inc.](#) are national experts who can help the county design this program properly. Even with a decentralized collection system where private haulers do the collection, unit-based pricing can be put into effect with agreements with the haulers. We recommend consulting Zero Waste or SERA, Inc. for help designing the proper system for Sullivan County.

Results of two-month unit-based pricing pilot in New Windsor, MD



Source: WasteZero

<sup>27</sup> Patrick Skahill, “Could ‘Pay as You Throw’ be the Future of Connecticut’s Trash?,” Jan 12, 2021.

[www.wnpr.org/post/could-pay-you-throw-be-future-connecticuts-trash](http://www.wnpr.org/post/could-pay-you-throw-be-future-connecticuts-trash)

<sup>28</sup> Interview with Kristen Brown, Waste Zero. [www.wastezero.com](http://www.wastezero.com)

<sup>29</sup> Kristen Brown, “Closer to Zero Through a Fair Trash Reduction (FUTURE) Program,” Presentation to Zero Waste Task Force, Feb. 13, 2019. <https://web.archive.org/web/20240127185418/www.montgomerycountymd.gov/SWS/Resources/Files/master-plan/pay-as-you-throw-waste-zero.pdf>

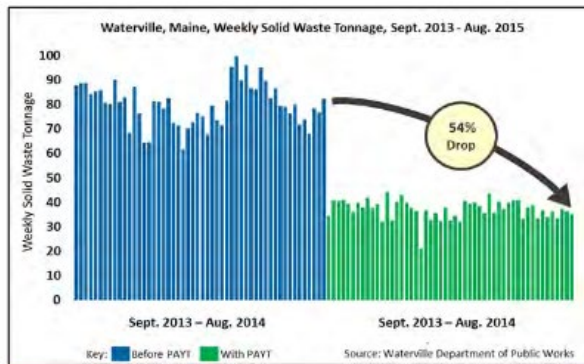
<sup>30</sup> Lisa Skumatz, “PAYT/SAYT – Pros, Cons, and How it Can Work,” Presentation to Zero Waste Task Force, Feb. 13, 2019.

<https://web.archive.org/web/20231117041307/https://www.montgomerycountymd.gov/SWS/Resources/Files/master-plan/pay-as-you-throw-sera.pdf>

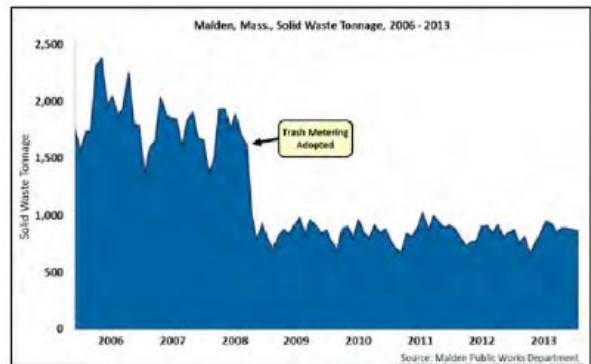
<sup>31</sup> Unit-Based Pricing (UBP) Working Group, Connecticut Coalition for Sustainable Materials Management.

[portal.ct.gov/DEEP/Waste-Management-and-Disposal/CCSMM/Unit-Based-Pricing](http://portal.ct.gov/DEEP/Waste-Management-and-Disposal/CCSMM/Unit-Based-Pricing) Videos of their presentations are available via [docs.google.com/spreadsheets/d/11\\_ITv80EVuiiOjiiN3BpGdYcALJycM63GNI2L67s3N9k/](https://docs.google.com/spreadsheets/d/11_ITv80EVuiiOjiiN3BpGdYcALJycM63GNI2L67s3N9k/)

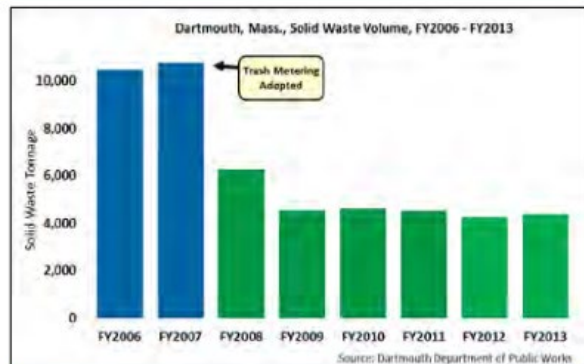
## Waste Zero examples of waste reduction impacts of unit-based pricing



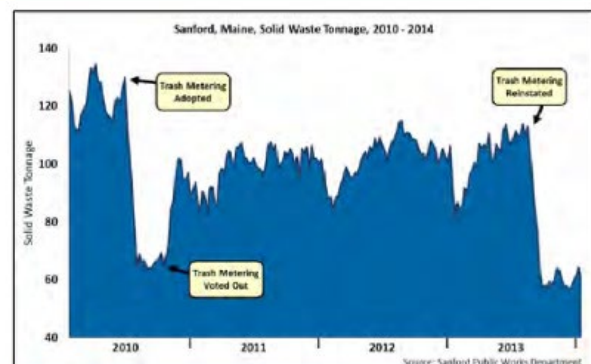
**WATERVILLE, MAINE**  
**54% DECLINE IN MSW IN 1 YEAR**



**MALDEN, MASS.**  
**52% DECLINE IN MSW OVER 5 YEARS**



**DARTMOUTH, MASS.**  
**59% DECLINE IN MSW**



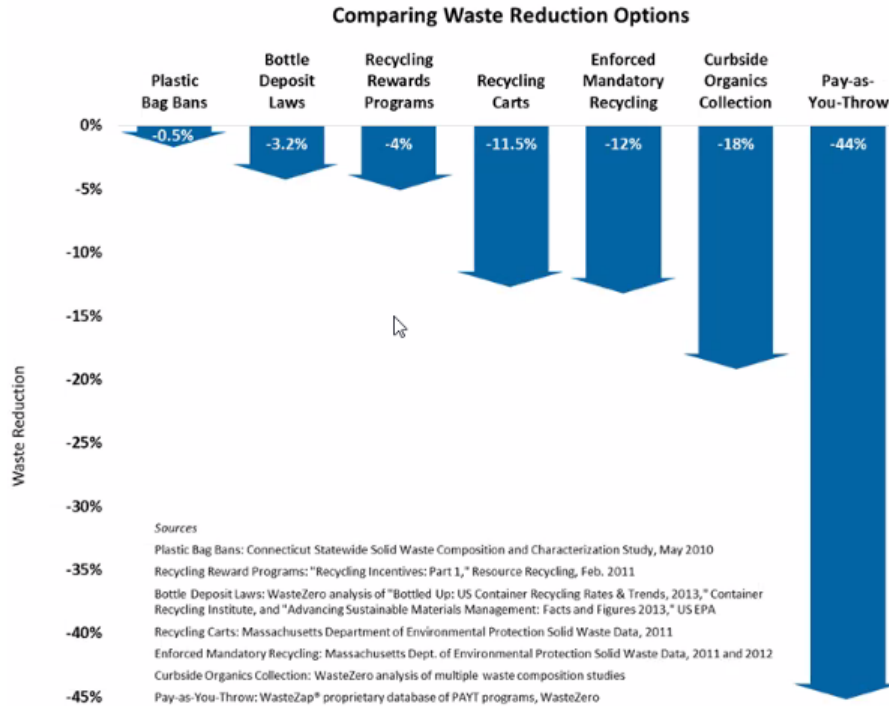
**SANFORD, MAINE**  
**POWERFUL MESSAGE**

Source: [WasteZero](http://WasteZero)

They can also dispel the common misconceptions that UBP programs discriminate against the poor, increase illegal dumping, or that they have to be perceived as a tax/rate increase. Experience around the country has found that it need not discriminate against low-income or large families so long as the rate is the same per gallon with different bag or bin sizes. Low-income residents benefit by having control over how much they spend, since they can reduce waste and pay less than they pay now. Where concerns about low-income residents have resulted in a certain amount of free bags being made available to people who qualify for other social programs, people tend not to take advantage of it, anyway. Nonetheless, so long as the economic incentive remains to inspire waste reduction, it'll be effective.

As for illegal dumping, experience around the country has not found a significant increase in illegal dumping after implementation of UBP. People don't tend to radically change their habits in reaction to this policy. Illegal dumping is largely construction/demolition waste from contractors, and bulky items that are inconvenient to properly dispose of (tires, mattresses...). There are solutions that address these more directly. In the cases where a small uptick has been found in illegal dumping after UBP adoption, setting up cameras at dump sites and doing some basic enforcement has quickly halted the dumping.

As for perception of increased taxes, there are effective ways to roll it out so that people understand that they now have more flexibility in how much they pay for waste, rather than perceive it as if they weren't already paying through taxes and now have a new fee. Making the existing cost visible is key.

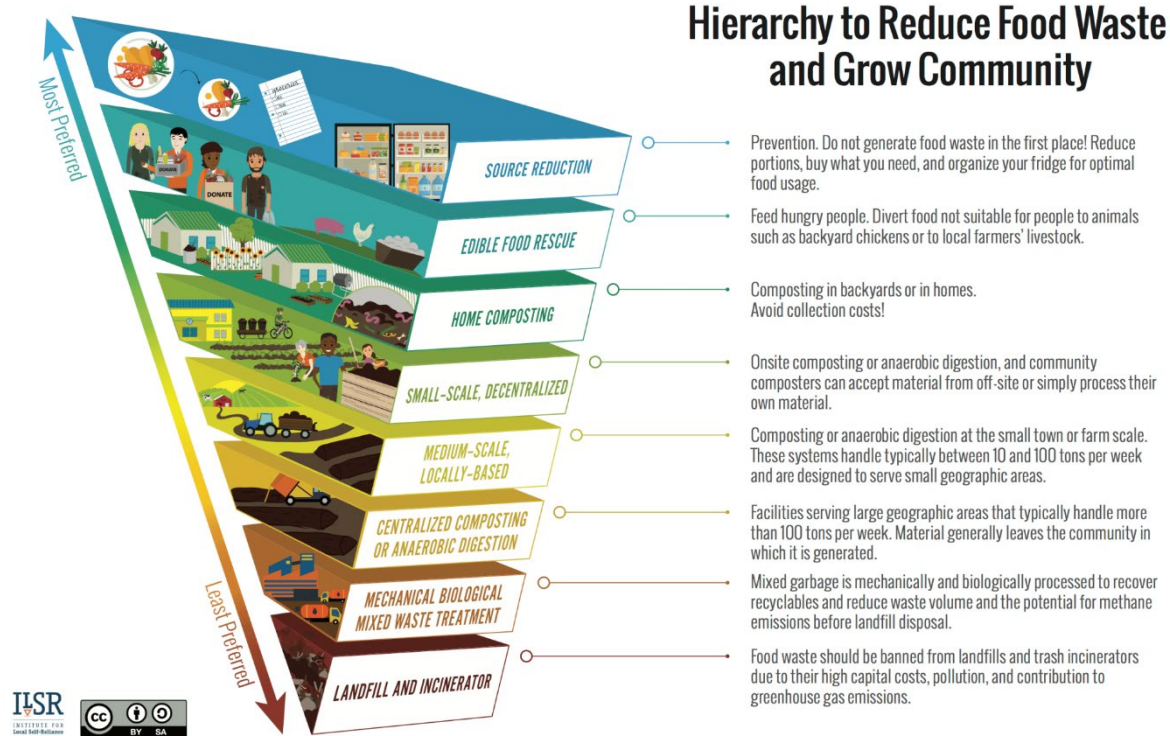


**D. Have universal collection and mandatory recycling and composting county-wide**

Ideally, the county would manage the collection, but the county could also franchise haulers to service certain parts of the county so that there are not parts of the county served in the “wild west” approach where each property owner hires their own collection company, and you could have several companies coming down the same street, increasing overall costs, traffic, emissions, and road impacts. Standardizing service throughout the county would help in many ways.

**E. Implement curbside composting collection**

The best advice on composting programs can be found in the [Montgomery County, Maryland Zero Waste Plan](#), which had a team of several of the best composting experts in the nation among the Zero Waste consultants writing the plan. Also, look to the [Institute for Local Self-Reliance’s Food Waste Hierarchy](#) and related materials for guidance. Note their focus on decentralization. There are also video presentations on composting among the recorded workshops in the [Connecticut Coalition for Sustainable Materials Management webinar series](#).



### F. Right-size the bins

Trash bins should be the smallest. Recycling should be the largest. Composting should be in the middle. The size of bins should approximate the composition of the waste stream. However, most cities give out small recycling bins while people's trash bins are much larger (whether provided by the county or not).

San Francisco uses a default 64-gallon blue recycling bin size, 32-gallon green composting bins, and 16-gallon black trash bins (with a raised bottom that makes them seem larger than they actually are).<sup>32</sup>



When Memphis, Tennessee simply increased the size of their recycling bins, recycling participation shot up. "In the last 12 months Memphis has increased its recycling tonnage by 61 percent, from 32 tons a day before the switch to 90 tons a day now."<sup>33</sup> "We rolled single-stream out in the Cordova and Hickory Hill areas in 2014... And we saw a tremendous increase in volume, literally overnight. Like, one week we had 18-gallon bins, the next week we had 96-gallon carts — 200 percent increase. Just like that. It became apparent that people recycle until the container's full."<sup>34</sup>

<sup>32</sup> <https://www.recology.com/recology-san-francisco/san-francisco-service-updates/#/info>

<sup>33</sup> <https://www.waste360.com/source-separation/memphis-tenn-finds-switch-to-single-stream-recycling-paying-off>

<sup>34</sup> <https://www.memphisflyer.com/the-recycling-crisis>

## G. Dial back trash collection frequency.

If any parts of the county have twice a week trash pickup, dial that back to once a week and complement it with weekly curbside composting and recycling pickups. Once other programs cut back on waste, test out dialing trash collection back to once every two weeks, while collecting composting weekly and recycling weekly or every other week.<sup>35</sup> This could be adopted once composting participation plateaus and recycling is on track. This boosts composting participation because people initially complain that their trash will stink, then quickly learn that the “smelly stuff” (food scraps) doesn’t belong in the trash bin, but in the composting bin. This solution was recommended to Montgomery County, MD by waste consultants in 2019.<sup>36</sup>

## H. Reuse Innovation

As Zero Waste pioneers Dan Knapp and Mary Lou Van Deventer documented with their Urban Ore operation in Berkeley, California, reusables are 5% of the discard stream, but represent 50% of the economic value of what we discard. Their large warehouse is like a Home Depot thrift store, where reusables of all sorts are recovered, organized, and sold. Everything from doors, windows, sinks and toilets to clothing, cassette tapes, and jewelry can be bought there at a discount. See <https://urbanore.com/about-us/>

Diane Cohen, CEO of [Finger Lakes Reuse](#) in Ithaca, NY argues that reusables are a much higher percentage of discards, and it’s not easily quantified. Dave Bennink, owner of [Re-Use Consulting](#) and Director of the Building Deconstruction Institute, is working with Ulster County, NY to develop a [Reuse Innovation Center](#) to maximize reuse, and divert materials from the county’s waste stream.

In the City of Surrey, British Columbia (suburb of Vancouver), the City was spending about \$3,000,000 a year on “spring cleanup days” for large household item pickup and they observed a lot of perfectly good reusable items out at curbside. They decided to take a different approach and, through the Recycling Council of British Columbia, contracted for <https://surreyreuses.com>. The Mayor and Council then advertised that spring cleanup days were no more, but that the service still existed in a different form. To have the city come out and pick up your large bulky household item, you first had to show that you had advertised it to give away on Surreyreuses.com and if there were no takers, the city would pick the item up. As far as we know, the city has not returned to “spring pickup days.” They continue to save a lot of money each year, and [surreyreuses.com](https://surreyreuses.com) is still busy. Since

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<sup>35</sup> Longmont, CO, Hamilton, MA, Wenham, MA, Portland, OR, Renton, WA, Sultan, WA, Toronto, Canada, 11 cities in British Columbia, and Edmonton, Alberta have bi-weekly trash collection. On Edmonton, see: “Edmonton to have full source-separated waste collection by August, new carts begin rolling out to homes in March,” Jan 6, 2021. [www.edmontonjournal.com/news/local-news/new-year-new-waste-disposal-program](http://www.edmontonjournal.com/news/local-news/new-year-new-waste-disposal-program)

<sup>36</sup> HDR, “Montgomery County, Maryland Aiming for Zero Waste – Task 5: Considered Enhancements/Expansions to the Current Diversion/Recycling System, Technical Memorandum #3 – Summary Report,” April 2019. Table 7, pp. 21-23. <https://web.archive.org/web/20240127185418/https://www.montgomerycountymd.gov/SWS/Resources/Files/master-plan/task-five-summary-report-proposed-improvements-expansions-current-diversion-recycling-system.pdf>

then, Facebook Marketplace has arrived and many people now use it for the same purposes. Many other online websites and apps exist that could be promoted as well, e.g. [Craigslist](#) and [OfferUp](#).

These are some of the innovators who can help work with local reuse economies, such as thrift stores, and with the county to expand its capacity to recover and reuse materials.

#### **I. Deconstruction**

Construction and demolition (C&D) waste is a large portion of the waste stream.

Much has been written on the topic, and we've compiled these resources into this website: <http://www.energyjustice.net/waste/cd>

Please spend time there to find reports from San Antonio, TX and Charlotte, NC, links to supporting organizations like [Build Reuse](#), a [book](#) by expert [Sara Badiali](#), links to states, cities and counties with good policies, and links to some of the companies in the deconstruction field. The county could adopt policies requiring deconstruction instead of demolition, and requiring an increasing percentage over the years of reused and recycled building material in new construction and renovation.

#### **J. CHARM**

A center for hard-to-recycle materials (CHARM) is a location where recyclables that are not collected curbside can be dropped off for proper recycling. The county would benefit from a distributed network of places where such materials can be dropped off for recycling, and perhaps reuse.

#### **K. Mattress Recycling**

A good model exists in Bridgeport, Connecticut. Tour it and explore how to bring one to the area. See <https://greenbpt.com/park-city-green/> Also, TurboHaul in Baltimore: <https://www.turbohaul.com/mattress-recycling/>

#### **L. Electronic Waste Recycling**

An [e-Stewards](#) certified company should be used, which avoids the use of prison labor and dumping on developing nations.

#### **M. Material Recovery and Biological Treatment (MRBT) to Landfill**

After eliminating incineration, then focusing on upstream parts of the Zero Waste Hierarchy, there are steps that can be taken to get closer to zero while minimizing impacts to landfill communities.

As a life cycle analysis has demonstrated, the best thing to do with the “leftovers” on the path to zero waste is called material recovery and biological treatment (MRBT) to landfill.<sup>37</sup> This is what the back end of the Zero Waste Hierarchy is talking about with material recovery and biological stabilization prior to landfilling. It follows what is widely done in Europe, and there are a few similar plants in California and one related operation in Halifax, Nova Scotia, Canada.

Material recovery (MR) is where machines and workers pull extra recyclables out of the waste that accidentally ended up in the trash. This uses technology that is essentially the same as “mixed waste processing,” but it is used on the trash stream *after* source separation of recycling. Biological treatment (BT) is where the organic fraction of municipal waste is digested in order to get the methane generating potential out of it before landfilling the residual. This reduces the water weight and volume for hauling the waste to a landfill, and ensures that the landfill will not be so gassy, stinky and leaky.

There are three ways that this is commonly screwed up:

- 1) No source separation. All trash, recycling, and composting is thrown together and a mixed waste processing facility is expected to sort it all out. This allows maximum laziness, but violates the state recycling law (Act 101 of 1988) and results in much less marketable recyclable material.
- 2) Incinerating the residual. Common in Europe, and in some proposals in the U.S., the residual is marketed to incinerators or cement kilns as fuel, maximizing pollution.
- 3) Using the organic residuals as soil amendment. This is common in U.S. proposals and in the projects in California where, to make the technology more profitable, they save on landfill fees and market the waste as if it’s clean enough to be put back on the land as soil amendment or fertilizer. It will be full of PFAS, microplastics, and other chemicals and belongs in a landfill. The digestion process is to make it stable in a landfill, not to pretend that it’s clean material coming out.

As Montgomery County, Maryland moves away from incineration, they are exploring the development of an MRBT system. Their goal is to do the most responsible thing with their waste, since they’ll be exporting trash to landfills in PA or VA and want to minimize the harm as they work to reduce that waste through Zero Waste strategies.

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<sup>37</sup> <https://ecocycle.org/content/uploads/2023/02/Report-Zero-Waste-System-Leftovers.pdf>

## N. Incentivizing Better Landfill Management

The county can be a leader in encouraging better landfill management. There are many nuances to how to better manage landfills. These are outlined in the back end of the Zero Waste Hierarchy, most notably our version here:

[www.energyjustice.net/zerowaste/hierarchy](http://www.energyjustice.net/zerowaste/hierarchy). There is also the official Zero Waste International Alliance's version, with its own details, at [www.zwia.org/zwh](http://www.zwia.org/zwh). These two hierarchy versions will eventually be merged.

Guidance on picking the best landfill if continuing to use out-of-county landfills can be found in the methodology from our report on Florida and Georgia landfills:

[Most Responsible Landfill Options for Miami-Dade County](#) evaluating 63 landfills in Florida and Georgia and identifying the best of them after scoring 18 criteria using U.S. Census, EPA, and other data sources.

<https://energyjustice.net/fl/landfills.pdf>

Sincerely,

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# ATTACHMENTS:

- 1) **How polluting is the Reworld Hempstead trash incinerator in Westbury?**  
<https://www.energyjustice.net/incineration/hempstead.pdf>
- 2) **Dr. Jeffrey Morris' CV** (MEBCalc life cycle assessment tool author, and author of Attach. 5)
- 3) **Life Cycle Assessment (LCA) and Monetization for Nine Human and Environmental Health Impacts from Delaware County, Pennsylvania MSW Diversion & Disposal 2020 Baseline and Recommended Zero Waste Plan** (full plan starts on page 10 following summary)  
<https://energyjustice.net/incineration/DelcoLCA.pdf>
- 4) **Beyond Incineration: Best Waste Management Strategies for Montgomery County, MD**  
(includes a life cycle analysis of incineration vs. landfilling and transportation impacts)  
<https://www.energyjustice.net/md/beyond.pdf>
- 5) **Quantitative Analysis of Projected Emissions from Proposed Miami-Dade County Trash Incinerator – An Evaluation of Miami-Dade County's Claims that a New 4,000 Ton/Day Mass Burn Incinerator will Result in No Unacceptable Pollution Impacts**  
<https://energyjustice.net/fl/mdcincin.pdf>
- 6) **It's Not Green: New Trash Incinerators in Palm Beach County are Expensive Major Air Polluters**  
<https://energyjustice.net/fl/pbcincin.pdf>  
(a Palm Beach County version of the previous report, with some additional analysis)
- 7) **Correcting the Record: Scientific Findings on Trash Incinerator Health Impacts – A Critical Review of the White Paper, "Waste-to-Energy Health Impacts Publications Resources" Commissioned by the Solid Waste Authority of Broward County, Florida**  
<https://www.energyjustice.net/fl/health.pdf>