



**Local Government Coalition
For Renewable Energy**

Alison Cameron
Minnesota Pollution Control Agency
520 Lafayette Rd N
St. Paul, MN 55155

Re: May 2026 Minnesota Resource Management Report
Public Comments of the Local Government Coalition for Renewable Energy

Dear Ms. Cameron:

The Local Government Coalition for Renewable Energy (“Coalition”)¹ appreciates the opportunity to comment on the Minnesota Pollution Control Agency’s (“MPCA”) study and draft plan, including the scenario of a 90% reduction in both landfilling and waste-to-energy (“WTE”) usage by 2045.

As a group of not-for-profit municipal solid waste (“MSW”) disposal authorities, we understand the challenges and urgency of waste reduction. Our facilities operate across all levels of the waste hierarchy, from recycling programs to waste reduction programs, WTE facilities, and landfills. Minnesota’s legislative charge—to evaluate a new analytical framework for waste reduction—is an ambitious one, unprecedented to our knowledge anywhere in the world. Any efforts toward waste reduction based on this framework cannot be achieved by setting numeric targets alone; infrastructure updates, new technology, and perhaps most importantly, policy support across state and local government combined with robust public participation on an individual level will be crucial to advancing MPCA’s goals.²

The Coalition fully supports the implementation of an integrated waste management strategy to move toward a circular economy. Importantly and practically, however, we submit that this strategy should recognize the interim benefits of WTE as Minnesota makes incremental progress toward this ambitious policy goal.

However Minnesota chooses to approach its waste reduction policy, the Coalition encourages MPCA to consider each tool within the waste management hierarchy as having a

¹ The Local Government Coalition for Renewable Energy is a national consortium of local government agencies that proactively advance integrated waste management for their communities combining programs for waste minimization, recycling, processing and disposal, including state of the art waste-to-energy (WTE) facilities. The individual Coalition members are: the City and County of Honolulu, Hawaii; ecomaine (Portland, Maine); Lancaster County Solid Waste Management Authority (Lancaster, Pennsylvania); Kent County Department of Public Works (Kent County, Michigan); Minnesota Resource Recovery Association; Northeast Maryland Waste Disposal Authority (Baltimore, Maryland); City of Huntsville Solid Waste Disposal Authority (Huntsville, Alabama); Solid Waste Authority of Palm Beach County (Palm Beach, Florida); Spokane Regional Solid Waste System (Spokane, Washington); and the York County Solid Waste Authority (York, Pennsylvania).

² The focus of our comment is not to critique the 90%-by-2045 scenario, which is a worthy if challenging goal. It is worth noting, however, that no peer U.S. State has come close to achieving these rates at present, and even the most advanced waste recycling nations in the European Union fall short of these targets.



purpose and a place within a well-functioning integrated waste management system. We encourage MPCA and the Minnesota legislature to focus not on eliminating specific tools, which are interdependent, but on implementing upstream policies that reduce the volume of waste, especially non-recyclable waste, that reaches our facilities.

This comment will focus on the unique role that WTE plays within our integrated waste management system, its environmental benefits vis-à-vis other methods for disposing of non-recyclable MSW, its interdependent relationship with recycling and materials recovery programs, and its consequent value as a stepping stone toward a zero waste economy. We also discuss certain key constraints on waste reduction, and the policies that need to be implemented before tools like WTE can be deemed unnecessary. Overall, it is the Coalition's goal that any waste management policy in Minnesota recognizes the value of local governments retaining access to the tools that best serve the needs of their individual communities.

Modern WTE is environmentally preferable to landfilling

WTE cannot be conflated with landfilling as a disposal method within the waste hierarchy. The Draft Report often discusses “waste disposal” as an umbrella term, seemingly treating WTE and landfilling as equivalent options.³ We do not dispute that these waste disposal methods occupy two of the lower tiers of the waste hierarchy,⁴ but it bears emphasis that they occupy separate tiers, and it would be a policy error to lump them into a generic category of “waste disposal.”

The only two methods of waste disposal proven to function at large scale for waste that cannot be prevented, reused, recycled or composted are combustion (with energy recovery) or landfilling. The impacts of these alternatives are demonstrably different, and WTE is widely recognized as the more environmentally sound option of the two, including by the 2022 White House Council on Environmental Quality.⁵

For starters, WTE facilities reduce the volume of waste to approximately 10% of its initial volume⁶ through controlled combustion, providing opportunities for increased recycling through materials recovery. WTE is historically more efficient at generating energy from waste than landfill gas capture with combustion, and it emits less greenhouse gases overall.⁷ While WTE still produces carbon emissions, it is considered a net-negative technology by EPA because it avoids fugitive methane emissions from landfills, reduces reliance on fossil fuels through energy

³ E.g. Draft Report at 13 (defining “disposal” as management of MSW through landfills or WTE facilities); Draft Report at 41 (referring to WTE and landfilling equivalently as “last resort” options).

⁴ See, e.g., <https://www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy> (energy recovery occupies the second lowest of four tiers, above treatment and disposal); <https://www.epa.gov/trinationalanalysis/waste-management> (energy recovery occupies the third of five tiers, directly above treatment, which places above disposal).

⁵ See http://www.sustainability.gov/pdfs/EO_14057_Implementing_Instructions.pdf, at p. 44.

⁶ <https://www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy>

⁷ P. Kaplan, Is it better to burn or bury waste for clean electricity Generation, Environ. Sci. Technol. 2009 (<https://pubs.acs.org/esthag/article/43/6/1711/198531/Is-It-Better-To-Burn-or-Bury-Waste-for-Clean>)



generation, and yields material recovery benefits that landfilling does not.⁸ Studies have estimated that WTE destroys between 98% and 99.97% of all PFAS chemicals in the waste stream through the incineration process.⁹ By contrast, EPA has found that even landfills outfitted with flexible membrane liner systems, and leachate and landfill gas collection systems, release significant quantities of PFAS chemicals in both emission streams, and at best sequester (but do not destroy) the remainder.¹⁰

In an optimistic scenario, Minnesota aims to achieve a 90% reduction of WTE and landfilling in roughly two decades. Until it reaches that goal, Minnesota will still need to contend with the problem of non-recyclable waste. It will need large-scale solutions to that problem, and it will need to make informed decisions about which of those solutions is most protective of human health and the environment. For Minnesota to chart the best path toward its zero-waste goal, it should understand the relative advantages of WTE over landfilling, and it should be careful not to deprive its local waste authorities of useful tools before those tools have outlived their purpose.

WTE has a role to play in the transition to a circular economy

As a consortium of municipal waste authorities, the Coalition supports policymaking that appropriately recognizes WTE's role as a stepping stone toward a circular economy. With the improvement of recovery technology from incineration ash, WTE contributes more than landfilling to a circular economy, through additional recycling of recovered metal and glass or reuse of non-hazardous ash in applications like road construction and aggregates.¹¹ Waste disposal (including WTE) is also a source of revenue for our not-for-profit waste authorities, which revenue is in turn used to develop and support more robust recycling programs (including curbside recycling and composting), collection of e-waste, and collection of household hazardous waste.

Local jurisdictions should have the option to employ the full range of interdependent tools to effectively reduce and divert waste rather than being artificially constrained by regulation that eliminates options in the absence of better alternatives. MPCA should avoid conflating WTE with other waste disposal options and should ensure state policy accurately reflects the differences between these solutions' respective strengths and weaknesses.

⁸ See https://www.epa.gov/system/files/documents/2024-01/warm_management_practices_v16_dec.pdf, p. 5-15 ("Combustion of mixed MSW results in slightly negative GHG emissions because of the high proportion of biogenic carbon and steel") & Section 5.2.

⁹ See <https://www.wastedive.com/news/pfas-incineration-study-minnesota-resource-recovery/812684/>; <https://d12v9rtnomnebu.cloudfront.net/diveimages/MRRA-MSW-PFAS-Emissions-Engineering-Study-Report-Facilities-1-3-Complete-Attachments-1-26-26.pdf> (estimating PFAS destruction in the range of 99.6 to 99.97 percent); https://cfpub.epa.gov/si/si_public_file_download.cfm?p_download_id=552533&Lab=AO (conservatively estimating 98% destruction rate based on testing done with hexafluoroethane, a highly durable and heat-resistant PFAS surrogate).

¹⁰ See <https://www.epa.gov/system/files/documents/2026-04/2026-interim-guidance-on-pfas-destruction-and-disposal.pdf>, at pp. 78-79.

¹¹ Michal Šyc, et al., Metal recovery from incineration bottom ash: State-of-the-art and recent developments, *Journal of Hazardous Materials*, Volume 393, 2020 (<https://www.sciencedirect.com/science/article/pii/S0304389420304222>)



The road to zero waste could be less direct than hoped for, making consideration of interim solutions like WTE all the more important. For example, in the European Union, where waste management among top-performing nations outpaces most U.S. states,¹² recycling rates across various waste streams have stagnated or fallen in recent years. While the total amount of waste generated in EU countries has increased despite their best efforts at waste reduction, it is notable that these countries also reduced their overall landfill rate from 23% to 17% between 2010 and 2022. This decrease in landfilling despite an overall increase in waste volume is largely explained by the EU's 2018 Landfill Directive, which directs member countries to ensure that no more than 10% of all MSW is landfilled by 2035.¹³

The EU has made progress toward this goal primarily through continued (often expanded) use of WTE technology, but significantly, emissions impacts have not intensified. In the same 2010 to 2022 time period, WTE facilities have increased in number, but emissions have remained relatively stable, and other pollutants including PAHs, PCDD, and PCDF have not trended upward.¹⁴ Emissions trends have generally remained flat since 2017, and are expected to decline after the full implementation of best available WTE technology takes effect.¹⁵

Similarly, in Vancouver, B.C., despite a nearly 25% reduction in total waste generated per capita throughout the region since 2011, the city's recycling rate effectively plateaued between 2018 and 2024 at 65%, and its diversion rate has stagnated as well.¹⁶ Meanwhile, the region's WTE facility has remained in operation and in regulatory compliance for all reported pollutants, showing no sign of increased emissions despite changes in the underlying waste stream.

Importantly, neither Vancouver's nor the EU's strategy of reducing landfill disposal is predicated on eliminating WTE facilities. Even in places where landfill disposal rates have fallen, and recycling rates are higher than Minnesota's, WTE's symbiotic relationship with waste diversion and recovery has made it an important transitional technology as these jurisdictions explore new waste reduction strategies.

The greatest limitations to waste diversion are upstream of waste disposal facilities

The Draft Report rightly recognizes the importance of advancing upstream strategies, instead of regulating only waste stream endpoints, to achieving its 90% diversion goal. The

¹² Germany's municipal waste recycling rate is the highest in the EU, at 68% according to EU data from 2023 (<https://www.eea.europa.eu/en/analysis/indicators/waste-recycling-in-europe>). Only a handful of U.S. states rank above a 50% recycling rate according to data from the Eunomia/Ball Corporation "50 States of Recycling 2.0" report published in 2023 (<https://dropcurb.com/blog/recycling-rates-by-state>; <https://www.ball.com/sustainability/real-circularity/50-states-of-recycling>).

¹³ See <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32018L0850>.

¹⁴ See CE Delft study commissioned by Zero Waste Europe and Reloop, at <https://zerowasteurope.eu/library/waste-incineration-under-the-eu-ets-an-assessment-of-climate-benefits-2/>.

¹⁵ <https://www.eea.europa.eu/en/european-zero-pollution-dashboards/indicators/pollutant-emissions-from-waste-incineration-indicator>

¹⁶ See <https://vancouver.sun.com/news/landfill-of-last-resort-how-metro-vancouver-plans-to-keep-more-waste-from-dump>; <https://www.bcbc.com/news/metro-vancouver-garbage-system-keeps-getting-more-expensive>.



Coalition strongly supports this conceptual framework and encourages examination of how policy decisions concerning upstream regulation impact WTE waste streams in particular.

Inherent in the waste hierarchy is the understanding that the less waste that enters the system, the less will eventually need to be incinerated or landfilled. A powerful example is found in the type of upstream regulation affecting common container and packaging material (CCPM) waste and deposit return schemes (DRS). DRS policies for CCPM waste have high potential to reduce plastic bottle pollution, for example, and increase recycling downstream, which creates jobs, saves landfill and incineration costs, and reduces GHG emissions from WTE combustion by reducing the plastic content of MSW, to name some benefits. It bears mention that, of the ten U.S. states with the highest CCPM recycling rates, eight have deposit return systems (e.g. “bottle bills”).¹⁷ Jurisdictions with high CCPM recycling rates often have extended producer responsibility (EPR) laws too. Maine disposes of the least amount of such waste per capita, recycles 72% of its CCPM waste (excluding cardboard and boxboard), and also has EPR laws. Notably, Maine also relies on WTE and has membership within our Coalition. Removing more plastic from the waste stream has significant downstream effects, including carbon emissions from WTE plants. Currently, six times more plastic is combusted than recycled; only 29% of PET plastic bottles are even collected for recycling, and then only 21% of collected bottles are ever turned into recycled materials due to contamination.¹⁸

The ultimate example of upstream regulation, beyond the reach of any single policy, is consumer choice and the variable of convenience. Single-use plastics and disposable products are ubiquitous in the U.S. Short of changing consumer behavior, which is not a reliable basis for setting policy, regulation needs to target the source of these materials. Of course, Minnesota is aware of the importance of this, given its EPR law. But there is more to the equation than physical consumer goods. Forward-thinking policy would be wise to address the availability of a diverse set of options that assist consumers in making the best choices. For example, the Draft Report notes the importance of prevention and reuse in the 90% diversion scenario modeling.¹⁹ Improving these metrics will require significant buy-in not only from consumers but from large corporations and small business owners alike, including the creation of new programs and new business models for things that consumers already do. Minnesota cannot single-handedly compel the creation of repair services, resale businesses or rental businesses, let alone direct customers to purchase goods from those businesses (perhaps at increased prices). While smart policy can effectively incentivize these services and businesses, it is unclear at present how such activities will be sufficiently scaled up. As the report notes, it is inherently difficult to measure these activities, and these business and consumer activities inherently rely on voluntary action. In other waste reduction methods, like food waste reduction, that reliance on voluntary action is even more striking.²⁰

¹⁷ Eunomia/Ball Report <https://www.ball.com/sustainability/real-circularity/50-states-of-recycling>

¹⁸ <https://news.climate.columbia.edu/2020/03/13/fix-recycling-america/>

¹⁹ Draft Report at pg 30

²⁰ Preventing Food Waste in Europe – Progress and challenges with a focus on food waste (<https://www.eea.europa.eu/en/analysis/publications/preventing-waste-in-europe-progress-and-challenges-with-a-focus-on-food-waste>)



Recognizing the challenges in this space, the Draft Report concludes that the state will need alternative collection systems, new infrastructure, local government participation, and consumer decision-making – but even while all of this is true, there are many unknowns.²¹ Programs incentivizing right to repair, funding mechanisms for reuse, repair, and refurbishment, and more, are complicated policy objectives. Minnesota should prioritize these initiatives ahead of other changes to the waste management system (i.e., decommissioning or disincentivizing certain facility classes), or waste will continue to proliferate, and waste authorities will have their hands tied in selecting the best disposal methods.

The Draft Report conflates WTE and landfilling using abstract, unilluminating measurements

The Draft Report uses a number of metrics to compare “facility classes” like WTE and landfilling in terms of ecological sensitivity, equitability and a construct known as the social vulnerability index (“SVI”). Many of these concepts are opaque, anchored in subjective judgments about the relative weights of social and environmental impacts, and divorced from conventional, intelligible measurements of human health impacts, about which the Draft Report acknowledges it lacks information.²² Given the availability of research on the human health impacts of WTE, we submit that these less conventional metrics provide too flimsy a basis for comparing or prioritizing facility classes, when by the Draft Report’s own admission, Minnesota will need to make informed choices between these disposal options for at least another twenty years.

For instance, the Draft Report notes gaps in certain data, citing an absence of recent air emissions risk analysis for both WTE and landfilling and a lack of health impact studies specifically focusing on WTE in the MSW context.²³ Still, the report goes on to suggest a 90% diversion scenario without WTE facilities may be superior, based only on the location of WTE facilities, an opaque analysis of the “likelihood of prevalence” of certain chemicals at those facilities, and an application of the SVI. This conclusion is flawed for several reasons.

First, the Draft Report does not address the research that does exist about the human health impacts of WTE (or if its authors considered this research but declined to rely on it, they do not explain their basis for doing so). A growing body of recent research confirms that modern WTE facilities, if they are in attainment of state and federal environmental regulations, pose no significant risk to human health.²⁴

Second, the “likelihood of prevalence” of certain pollutants at certain facility classes is an unhelpful and potentially misleading metric. The report defines the likelihood of prevalence as

²¹ Draft Report at 91, 98.

²² Draft Report at 203 (noting that research is not available to quantify actual exposure of WTE pollutant emissions, but assuming WTE can “have an associated risk to human health if not managed and operated properly”).

²³ Draft Report at 131–33.

²⁴ E.g., <https://static.spokanecity.org/documents/solidwaste/wastetoenergy/wte-report-2021.pdf>; <https://reference-global.com/download/article/10.2478/aiht-2023-74-3733.pdf>; <https://wte.org/wp-content/uploads/2024/11/RTR-Health-Risk-Assessment-Memo-Final-2024-03-25-copy.pdf>.



“the likelihood of existing in each MSW facility compared to the other facilities, and whether the existence would cause health impact.”²⁵ But this says nothing about where at each facility those pollutants are found (e.g. in the pre-processed waste stream, in emissions before application of pollution control devices, in outlet emissions or in ash), let alone whether or how the presence of the pollutant could cause human health impacts. Indeed, as the Draft Report notes elsewhere, its authors claim to lack data about human health impacts, but surmise that such impacts are likely to depend heavily on whether WTE facilities are “managed and operated properly.”²⁶ To our knowledge, each of Minnesota’s WTE facilities meets this standard -- but the Draft Report stops short of addressing this point.

Third, while the Draft Report’s comparison of facility classes includes the caveat that actual monitoring may reveal certain disposal facilities present greater risk,²⁷ relying only on the SVI and the location of facilities is insufficient to make long-range policy decisions, especially when better research exists. EPA uses a more nuanced methodology to gauge the site-specific “residual risk” posed by regulated sources under the Clean Air Act, and research exists applying those methodologies to specific WTE facilities to determine the risk to human health from pollutant inhalation or indirect exposure (through deposition to non-air media).²⁸ Minnesota could make more informed decisions about the human health risks of different facility classes by following a similar approach. The SVI metrics also do not necessarily align perfectly with the data points for ecological concern. When looking at the ecological concern metrics, MPCA’s data shows that both the 90% diversion scenarios with and without WTE are quite similar, such that the absence or presence of certain facility classes matters less.²⁹

Minnesota cannot develop sound waste management policy without understanding the emissions and pollutant impacts of WTE and landfilling methods on human health. Without such data, committing to any diversion scenario that removes WTE facilities in favor of landfilling would not only be premature, but would be contrary to the waste hierarchy itself.

Moving Forward

The Draft Report notes that a statewide modeled diversion target and forward progress on the minimum diversion requirements “depends on steady improvements at the local level, where counties, cities, solid waste management districts, and private companies deliver most waste and recycling services.” As municipal authorities sitting at the intersection of these spaces, the Coalition thoroughly agrees. However, setting achievable targets through a multifaceted suite of upstream policies will give a tremendous headstart to waste management outcomes sought at any given level in the waste hierarchy. This will be best supplemented by facility-specific, community-specific data. Within these coming policy changes, municipal WTE presents an increasingly

²⁵ Draft Report at 112.

²⁶ Draft Report at 203.

²⁷ Draft Report at 131.

²⁸ See <https://wte.org/wp-content/uploads/2024/11/RTR-Health-Risk-Assessment-Memo-Final-2024-03-25-copy.pdf>.

²⁹ Draft Report at 160–162.



**Local Government Coalition
For Renewable Energy**

important role for local government authorities to participate in the transition to a circular economy as a critical stepping stone. This solution should not be written off or merely conflated with other disposal methods of last resort. Thank you for the opportunity to submit this comment. The Coalition remains supportive of a successful and sustainable waste management future in Minnesota.

Sincerely,

Malcolm Seymour

Malcolm Seymour

Counsel, Local Government Coalition for
Renewable Energy