

The Hennepin Energy Recovery Center and its role in the solid waste system

A staff report for the
Hennepin County Board of Commissioners

September 2023

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Purpose

This report was prepared for the Hennepin County Board of Commissioners to provide information and context related to decision-making for the 2024 Solid Waste Management Plan, the Hennepin Energy Recovery Center (HERC), community concerns, and a provision in the state legislature's 2023 infrastructure bill that the county must submit a plan for the cessation of operations at HERC to access the \$26 million appropriated for the construction of an anaerobic digester.

How to read this report

This report includes background information and operational, historical, legal, financial, and environmental considerations.

Throughout the report, waste refers to all materials discarded as trash, recycling, or organics recycling. Trash refers specifically to materials put in the garbage.

Background section

- **Solid waste planning** includes a description of the county's responsibilities for managing a solid waste system in accordance with the state's Waste Management Act.
- **County trash management facilities** includes a description of the two facilities the county owns and operates: HERC and the Brooklyn Park Transfer Station. This section also includes a description of additional transfer stations and privately owned landfills that manage trash generated in the county.
- **History of waste management** provides a chronological review of key steps the county has taken to meet state-mandated waste management and recycling goals from the passage of the Waste Management Act in 1980 through today.
- **Trash generation and disposal methods** provides an overview of how much waste is generated in the county and what methods have been used to dispose of trash over time.
- **Landfill abatement policy** provides a description of the state's Metro Policy Plan, reviews the forecast of waste generation growth in this next planning period, and shows waste management in Hennepin County in five-year increments, noting significant milestones described in the history section. It also includes a summary of the MPCA's position on waste-to-energy.

Considerations and consequences section

- **Operational considerations** include impacts to county buildings, contracts, jobs, and resiliency of energy infrastructure. It also includes impacts on waste disposal, including service considerations for the municipalities and businesses and associated liability assessments. Additionally, it includes information about landfill capacity.

- **Legal and financial considerations** provide an overview of the county's Solid Waste Enterprise Fund, including revenues, expenditures, and impacts of the potential loss of revenue for environmental programs if HERC were to close.
- **Environmental considerations** include information on climate, air, and water pollution associated with waste-to-energy and landfills, as well as legacy impacts from landfills.
- **Policy and legislative considerations** provide a set of state legislative actions and supporting federal, and county led efforts to be implemented to advance a zero-waste future and environmental impacts.

Summary of considerations

This closing section provides a summary of the key considerations identified by staff in this review and next steps.

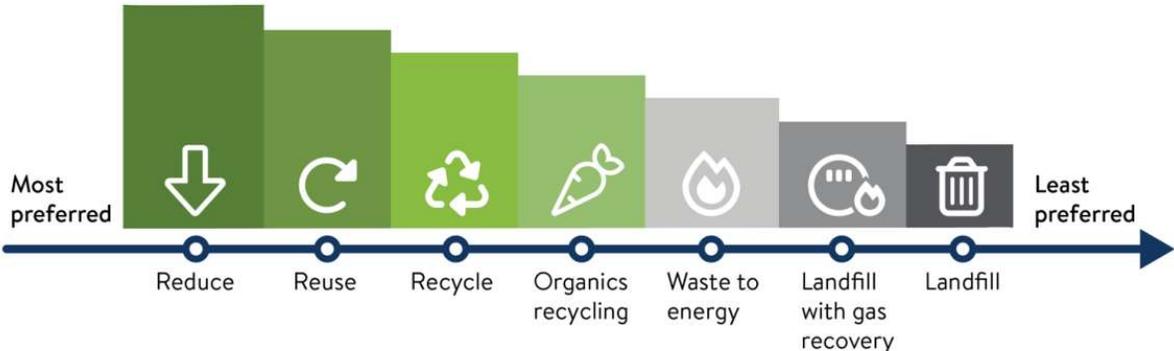
Background

Solid waste planning

Counties engaging in solid waste management in Minnesota are responsible for managing their solid waste systems in accordance with the state’s Waste Management Act, which establishes a waste management hierarchy (Minn. Stat. § 115A.02) (Fig. 1). The hierarchy prioritizes, in descending order of preference: reduce, reuse, recycle, organics recycling, waste-to-energy, landfill with gas recovery, and landfill without gas recovery. Implementing a system that complies with state law is a shared responsibility between government, the waste management industry, businesses, manufacturers, retailers, and residents.

Minnesota’s waste management hierarchy

Fig. 1

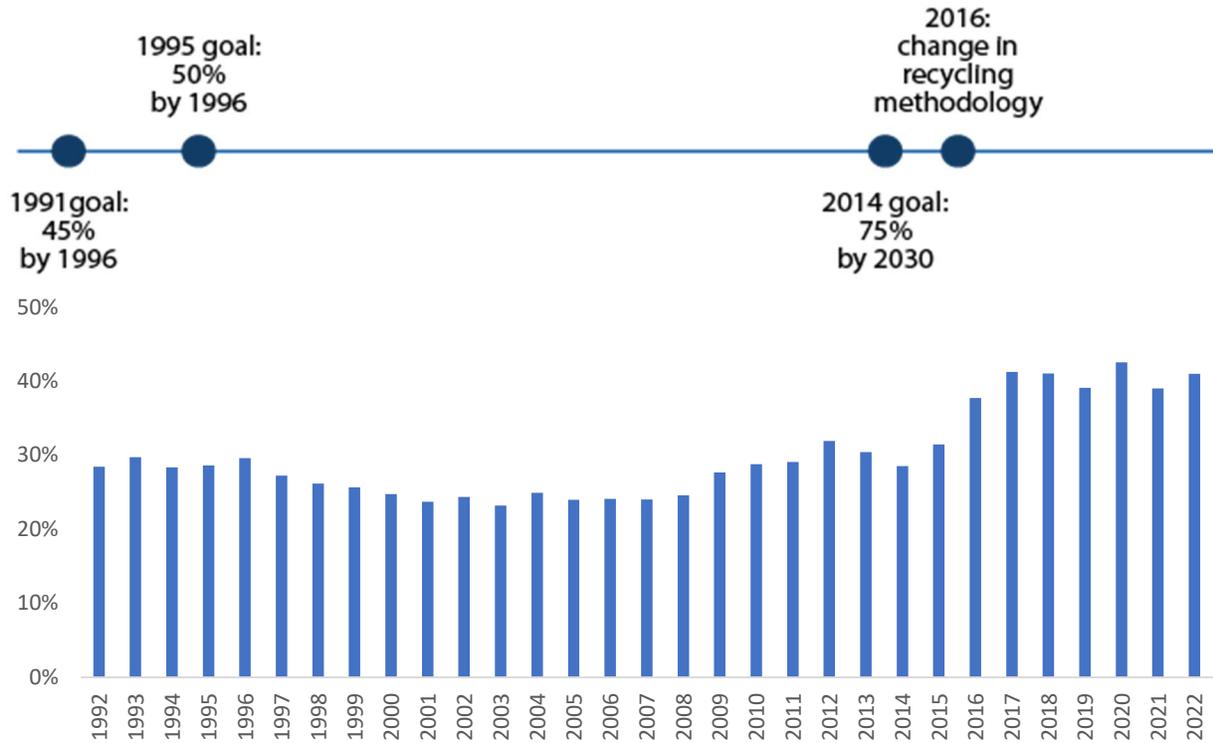


Source: Minnesota Pollution Control Agency

The county is required to develop a solid waste management plan that implements the Metropolitan Solid Waste Management Policy Plan and identifies strategies to meet the recycling goals and objectives of the Metro Policy Plan (Minn. Stat. §§ 473.149; 473.803). The county’s current [solid waste management plan for 2018 to 2023](#) establishes the county’s solid waste strategies to achieve the goal of 75% recycling by 2030 and zero waste to landfills.

Figure 2 shows the county’s recycling rate compared to established state recycling goals by year. As the chart indicates, setting a goal is not enough. Progress toward the state’s ambitious goals has been incremental, and it has been challenging for the county to achieve a diversion rate greater than 50% despite the implementation of many new programs. A serious effort to reduce the trash we produce will require bold action at the state and local levels on policy, new infrastructure, and expanded funding.

Recycling rate and state recycling goals
 Fig. 2



The state has a draft of its [2022 to 2042 Metropolitan Policy Plan](#) (draft Metro Policy Plan) available for public comment through September 17, 2023 (subject to change). Once the state policy plan is finalized, the county has nine months to complete its own Solid Waste Management Plan. The county’s plan requires approval by the county board and the MPCA commissioner.

The county recently completed a [Zero Waste Plan](#) to transform the waste management system to a future where all materials are designed to become resources for others to use. In the Zero Waste Plan, the county has defined zero waste as preventing 90% or more of all discarded materials from being landfilled or incinerated. This plan will serve as the foundation of the county’s Solid Waste Management Plan that will be developed in 2024.

County trash management facilities

To support the county's integrated waste management plan, the county owns and operates two solid waste facilities: HERC and the Brooklyn Park Transfer Station. Waste facilities include transfer stations, processing facilities, and disposal sites and facilities (Minn. Stat. § 115A.03, subd. 35).

A transfer station is a facility where trash is unloaded from smaller trucks and reloaded into larger vehicles for transport to a final disposal site. Waste transfer stations make trash collection more efficient and reduce overall transportation costs, air emissions, energy use, truck traffic, and road wear and tear.

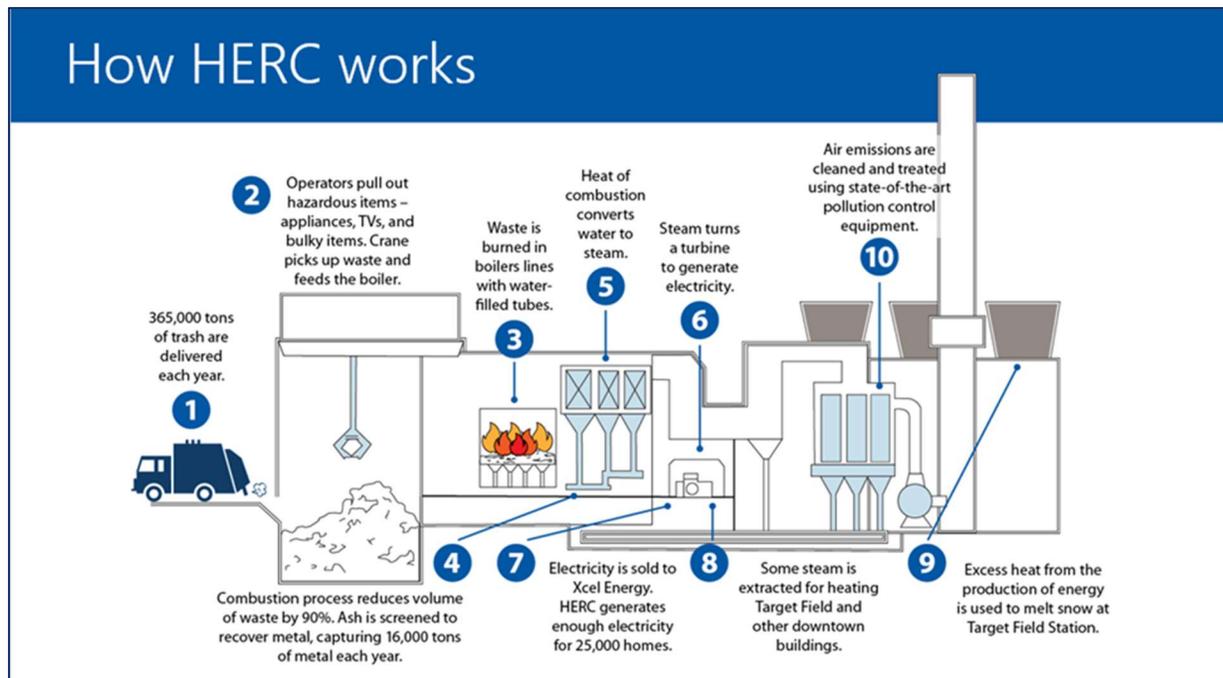
"Processing" describes the treatment of trash after collection and before disposal, typically to recover resources from the trash (Minn. Stat. §§ 115A.03, subd. 25 & 473.848, subd. 5).

Cities and private haulers contract with the county and pay the county tipping fees to deliver trash generated in Minneapolis and the surrounding communities to HERC and the Brooklyn Park Transfer Station. These tipping fees fund the county's Solid Waste Enterprise Fund and the Environment and Energy Department's activities (see page 33).

Hennepin Energy Recovery Center (HERC)

Located in downtown Minneapolis (505 N 6th Ave), HERC is a mass-burn facility that processes trash to avoid landfilling and recover resources from the trash stream. It is the only waste processing option located within the county.

How HERC works
Fig. 3



As depicted in Figure 3, about 200 garbage trucks per day deliver trash from Minneapolis and 16 suburban communities (see page 25) to HERC. The facility is limited by its state permit to processing 365,000 tons of trash annually. The trash is dumped out of garbage trucks and pushed into the fully enclosed waste pit with loaders. A crane picks the trash up from the pit and feeds it into two boilers. Operators pull out hazardous and problematic materials such as appliances, televisions, and bulky items, and those items are either recycled or landfilled.

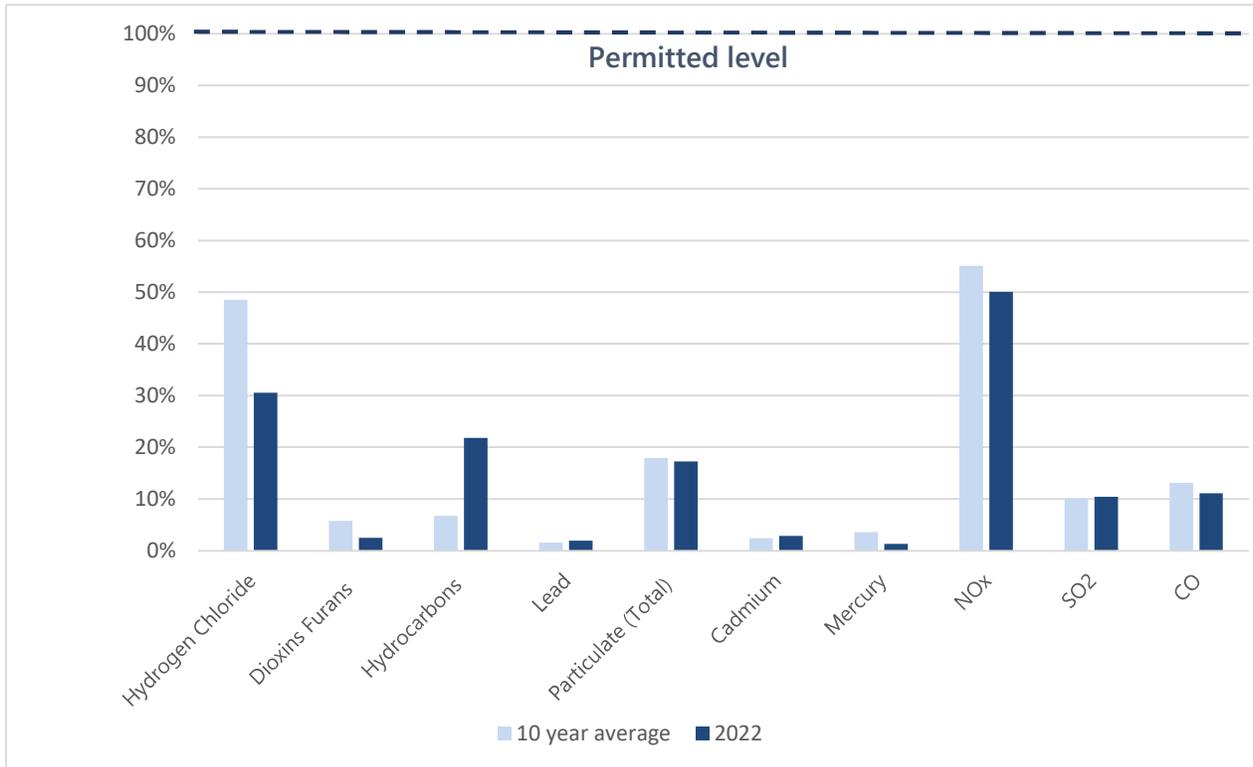
The trash is burned in boilers lined with water-filled tubes. The heat of combustion converts the water in the tubes to steam that turns a turbine to generate electricity. HERC produces about 200,000 megawatt hours of electricity every year, enough to power 25,000 homes. The electricity is sold to Xcel Energy at the market rate. A portion of the steam produced is sent to the steam line under the 7th Ave bridge. This steam provides heating and cooling to the downtown Minneapolis district energy system (operated by Cordia Energy Solutions) and Target Field. The district energy system is a network of pipes that aggregates the heating and cooling needs for 100 downtown buildings. District energy systems are more efficient and less costly than buildings operating their own boilers and chillers.¹

¹ Project Drawdown Climate Solutions [District Heating](#)

As shown in Figure 4, HERC’s pollution control equipment and operators control air emissions to be consistently below the MPCA’s permitted levels.²

HERC emissions as a percent of permitted levels

Fig. 4



The combustion process reduces the volume of trash by 90 percent. The material remaining after combustion is non-hazardous ash that is disposed of at the SKB Landfill in Rosemount. The non-hazardous ash is processed by GEM-Ash at the landfill to recover and recycle additional metals. In 2022, 17,251 tons of metal were recovered from waste processed at HERC.

Since HERC opened in 1989, it has processed 12 million tons of trash – enough to fill Target Field 100 times. HERC has produced enough electricity to power 25,000 homes for 34 years and has recovered 350,000 tons of metal.

Brooklyn Park Transfer Station (BPTS)

The county’s transfer station is located at 8100 Jefferson Highway in Brooklyn Park. BPTS is used to unload trash from haulers in smaller trucks and reload it into larger vehicles for transport to disposal facilities, including HERC. In 2022, the county transferred 154,000 tons of trash through this facility, with 70,000 tons delivered to HERC and 84,000 tons delivered to the Elk River

² MPCA [Point source air emissions data](#)

Landfill, which is owned and operated by Waste Management. The county also uses this facility as a drop-off center for residents to dispose of hazardous items and to transfer organics to composting facilities. The central location of BPTS provides an opportunity to efficiently collect and process organics and reduce emissions from transporting the material. The location of the county's proposed anaerobic digestion facility is adjacent to the transfer station, at 9401 83rd Avenue in Brooklyn Park.

Additional solid waste facilities

This report includes references to additional solid waste facilities that are a part of the county's solid waste system, though some are located outside of Hennepin County. The draft Metro Policy Plan requires counties to complete an environmental justice review when developing their solid waste management plans. Map 1 shows the locations of solid waste facilities and census tracts that are considered areas of concern for environmental justice. Areas marked with blue lines are census tracts with more than 40% of the population earning incomes less than 185% of the federal poverty level. Areas shaded in green are census tracts with greater than 50% people of color (see MPP 2022 – 2042 Draft, 56, Appx. B.).

Transfer stations

In addition to BPTS, five transfer stations are part of the county's solid waste system:

- City of Minneapolis Transfer Station, 2710 N Pacific St, Minneapolis, MN 55411
- City of Minneapolis Transfer Station, 2850 20th Ave S, Minneapolis, MN 55407
- Republic Flying Cloud Transfer Station, 9813 Flying Cloud Dr, Eden Prairie, MN 55347
- SKB Malcolm Ave Transfer Station, 630 Malcolm Avenue SE, Minneapolis, MN 55414
- Waste Management Maple Grove Transfer Station, 10633 89th Ave N, Maple Grove, MN 55369

Landfills

Modern landfills are designed to keep waste and landfill byproducts separate from soil and groundwater. Landfills that accept trash are constructed with a layer of clay and a flexible plastic liner to contain liquids. As stormwater and liquids in the trash passes through the landfill, this leachate draws out contaminants from the trash. The leachate is collected through a drainage system that conveys the liquid to tanks or a holding pond. It is then most commonly trucked or piped directly to a wastewater treatment facility where it can be treated to remove traditional contaminants before being released back into local waterbodies. Lined landfills are designed with leak detection systems called lysimeters to monitor for leaks in the liner, and landfill operators are required to test groundwater wells to monitor for liner leaks.

Landfills typically require a Conditional Use Permit by the local government and are issued solid waste permits and air permits from the MPCA for the landfill gas and flare/energy recovery unit.

Monitoring wells are permitted by the Minnesota Department of Health (MDH) and, sometimes, the local government.

Trash trucks unload trash on the working face of a landfill, and a loader moves and compacts the trash into cells. Every evening, a layer of soil or other materials is used to cover the trash to minimize odors, litter, and wildlife problems.

The food, paper, and wood in a landfill will decompose over time. The decomposition process produces gas that is approximately 50% carbon dioxide, a greenhouse gas, and 50% methane, a flammable and potent greenhouse gas. Local landfills that accept municipal solid waste have low permeability liners and covers and gas extraction systems to manage the gas to protect the integrity of the cover and prevent migration of the landfill gases to adjacent areas. Methane recovery systems for modern landfills collect approximately 75% to 85% of the methane produced. This methane gas is flared or used as fuel source.

Metro-area landfills outside of Hennepin County

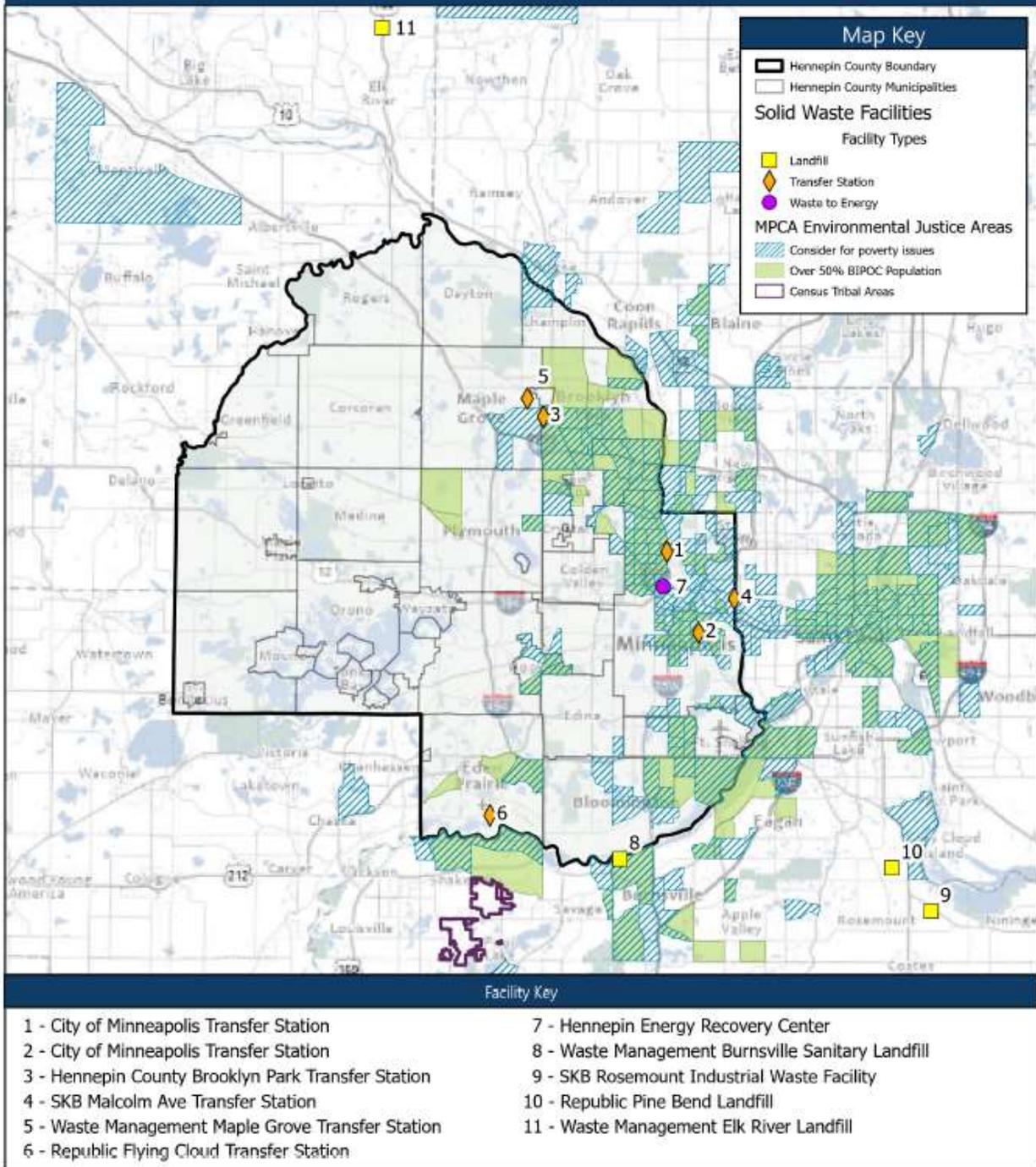
There are no active landfills in Hennepin County, and those located elsewhere in the metro must receive permission from the MPCA to expand their current capacities (see page 29).

There are four landfills that are part of the county's solid waste system:

- Republic Pine Bend Landfill, 2495 117th St E, Inver Grove Heights, MN 55077
- SKB Rosemount Industrial Waste Facility, 13425 Courthouse Blvd, Rosemount, MN 55068 (ash only, not permitted for municipal solid waste)
- Waste Management Burnsville Sanitary Landfill, 2650 Cliff Rd W, Burnsville, MN 55337
- Waste Management Elk River Landfill, 22460 Highway 169 NW, Elk River, MN 55330

Map 1 – Solid Waste Facilities

Environmental Justice Areas - Minnesota Pollution Control Agency



Disclaimer: This map (i) is furnished "AS IS" with no representation as to completeness or accuracy; (ii) is furnished with no warranty of any kind; and (iii) is not suitable for legal, engineering or surveying purposes. Hennepin County shall not be liable for any damage, injury or loss resulting from this map.



Publication date: 7/18/2023

Data sources: Hennepin County, MPCA

History of waste management in Hennepin County

The waste management hierarchy that guides the county's priorities today was established by the Minnesota Waste Management Act in 1980. The first citywide curbside recycling program began in Minneapolis in 1983 with monthly collection. The county's recycling ordinance (Ordinance 13) was adopted in 1986, and curbside recycling became available throughout the county in the late 1980s.

Building waste-to-energy plants

The state Waste Management Act also required metropolitan counties to submit plans for facilities that would process waste rather than disposing of it in landfills. Specifically, the act required counties to create proposals to "address at least waste reduction, separation, and resource recovery" (1980 Minn. Laws Ch. 564, Art. X, § 8, adding Minn. Stat. § 473.803, subd. 1b).

Hennepin County looked to Europe, where, because land for disposal is limited and energy is needed, pollution control technology was developed to turn garbage incinerators into waste-to-energy plants that can exist in metropolitan areas. In 1984, the county explored two north Minneapolis locations, first on the west bank of the Mississippi River and then on its east bank, for a 2,000 tons per day waste-to-energy facility (double the capacity of HERC). These locations were explored due to the proximity of the Riverside Power Plant. Residents successfully opposed the north Minneapolis sites. Legislators also limited the average daily throughput of resource recovery facilities in Minneapolis to 1,000 tons per day (Minn. Stat. § 383B.235 (1984)).

The county then narrowed the search for locations that were large enough for a 1,000 tons per day facility, had truck routes and freeway access, were screened from neighborhoods, and were close to a potential downtown steam market. In 1985, the final site, a former Greyhound bus garage site, was selected. This location was selected because few people were living nearby, it was an industrial area with salvage yards and a chemical processing hub, it was adjacent to steam heating lines, and it was near downtown Minneapolis where large amounts of trash were generated. In 1987, the MPCA granted final permit approval, the City of Minneapolis approved the conditional use permit, and construction began. HERC was constructed by Blount Corporation at a total cost of \$160.5 million, funded primarily by Hennepin County debt of \$134.5 million. Blount sold HERC to General Electric in 1988. Covanta Energy operated the plant from 1989 until 2018.

In total, seven waste-to-energy plants were developed in Minnesota in the 1980s. This includes three plants in addition to HERC that were planned to serve the metropolitan area. Ramsey/Washington Recycling and Energy facility opened in 1985, and the Elk River Resource Recovery Facility opened in 1989.

As part of the 1980 Waste Management Act, the legislature also created a landfill siting process and required metro counties to identify potential landfill sites within their respective counties (1980 Minn. Laws Ch. 564, Art. X, § 8 (adding Minn. Stat. § 473.803, subd. 1a)). Hennepin County

identified four potential sites in Corcoran, Dayton, Greenfield, and Independence. In 1988, these cities sued the county to block the study of a landfill to dispose of incinerator ash and municipal waste within their boundaries. By 1991, the legislature halted the landfill siting process for all counties (1991 Minn. Laws Ch. 337, § 90).

Flow control overturned by the U.S. Supreme Court

When HERC began operations in 1989, the county implemented waste flow designation (flow control) that required all haulers to deliver trash generated in Hennepin County to HERC or county-designated transfer stations. From 1990 to 1994, almost all trash generated in Hennepin County was being processed rather than landfilled. In 1994, the U.S. Supreme Court decided *C & A Carbone, Inc. v. Town of Clarkstown, N.Y.*, which overturned local flow control ordinances. After this decision, the county began contracting with haulers for trash deliveries to HERC. Some haulers chose not to contract with the county and delivered trash to local landfills instead.

Managing hazardous waste

In addition to being concerned about the volume of trash being disposed of in landfills in the 1970s and 1980s, the community was concerned about waste mismanagement, particularly for hazardous waste. Hennepin County adopted a hazardous waste management ordinance (Ordinance 7) in 1980 and started licensing, inspecting, and handling enforcement for businesses that generate hazardous waste. The county also started holding community collection events where residents could drop off their household hazardous waste, such as cleaners, electronics, appliances, paint, automotive products, and batteries, in the mid-1980s. Hazardous waste collection events for residents became so popular that the events were often over capacity, so the county opened permanent drop-off facilities in Bloomington and Brooklyn Park in the early 1990s. Additionally, one of the first product stewardship initiatives started in 1994 with NSP (now Xcel Energy) reimbursing counties for collecting and properly disposing of fluorescent light bulbs.

The county's household electronics collection program began in 1992 with the goal of removing heavy metals and other materials from the trash. The county formed a unique partnership with a nonprofit to demanufacture electronics, meet high environmental standards, and provide paid job training for adults with barriers to successful employment. The quantity of electronic waste continued to grow, and management of e-waste became a key concern in the mid-2000s. In 2006, the state banned electronics containing cathode ray tubes (CRTs) from the garbage because they contain lead, and the Electronics Recycling Act in 2007 required electronics manufacturers to reimburse counties for the collection and proper disposal of electronics.

Focusing on reduce, reuse, and recycle

Programs to minimize trash continued to evolve. The county started waste prevention programs in the early 1990s, including a rewear fashion show, free product centers at the drop-off facilities, and reducing waste in county operations. The state prohibited yard waste from being

included in trash in 1990, and the last landfill in Hennepin County closed in 1993. The metro area counties formed the Solid Waste Management Coordinating Board (SWMCB) in 1993 to work collaboratively on solid waste issues. Recycling in multiunit buildings became mandatory in the early 1990s. Recycling programs began accepting plastic bottles in 1991, and recyclable materials have continued to expand and evolve.

Organics recycling launches

With recycling programs well-established, the county started to focus on the most prevalent material in our trash – food and other organic waste – in the early 2000s. The county sold compost bins to residents, and a citywide curbside organics recycling pilot launched in Wayzata in 2003 as well as programs in 21 schools in Hopkins, Minnetonka, and St. Louis Park. To help further expand recycling, the county funded grant programs to support recycling improvements in schools, businesses, multifamily buildings, and public spaces. Waste prevention efforts expanded in the 2010s with the start of the Community Recycling Ambassador program, Fix-It Clinics, and Zero Waste Challenge. County program development also began to increase salvage, reuse, and recycling of building materials.

County pursues efforts to process more waste; takes ownership of HERC

The state legislature eliminated the 1,000 tons per day limit for HERC in 2000, allowing it to process waste “to the full extent of its maximum yearly capacity,” if it did so in compliance with federal and state environmental laws and with a conditional use permit from Minneapolis (2000 Minn. Laws, Ch. 488, Art. 3, § 30).

In 2003, the county bought HERC from General Electric for \$37 million and paid off the debt for the original purchase in 2012.

In 2010, the county sought modifications of both HERC’s conditional use permit and air permit to allow HERC to operate at its full capacity (1,212 tons per day). The county pursued this effort in conjunction with new waste reduction and recycling strategies to further reduce the amount of trash going to landfills and to maximize energy revenues for environmental programming. Processing additional trash at HERC received opposition from community and Minneapolis city council members. The air permitting process was drawn out over three years. Eventually, the county board withdrew the application in 2014 (Resolution 14-0058R2). This resolution also required the City of Minneapolis to offer organics recycling to its residential customers.

New operator agreement

In 2018, the county hired Great River Energy HERC Service LLC (GREHS) to operate HERC. The structure of the agreement with GREHS is a cost pass-through contract that includes the county paying GREHS a management fee. Under the terms of the agreement, the county reviews and approves operating and capital expenditures, providing greater transparency and accountability.

Amending the recycling ordinance

Organics recycling programs for residents, at various businesses and nonprofit organizations, and at many schools continued to develop throughout the county during the 2010s. To accelerate the development of these programs, the county amended Ordinance 13 in 2018 to require businesses that generate high volumes of food waste to recycle that waste and to require all cities to offer organics recycling service to their residents.

Also during this time, recycling programs switched to single stream so that all recycling is collected together, and the county reinvigorated efforts to improve recycling at multiunit buildings. Additionally, the state and the county passed new recycling requirements for businesses.

Waste-to-energy facilities face pressure

Seeking approval to process more trash at HERC and receiving negative attention while the Twins' ballpark was sited next to the plant in 2010 renewed efforts by environmental activists and political leaders to close HERC.

An international anti-incineration organization funded grassroots organizers in Minnesota to call for shutting down HERC. Efforts began at the state legislature to remove waste-to-energy from the definition of "renewable energy," despite allowing landfills that recover methane to continue qualifying as "renewable" and receive the related benefits.

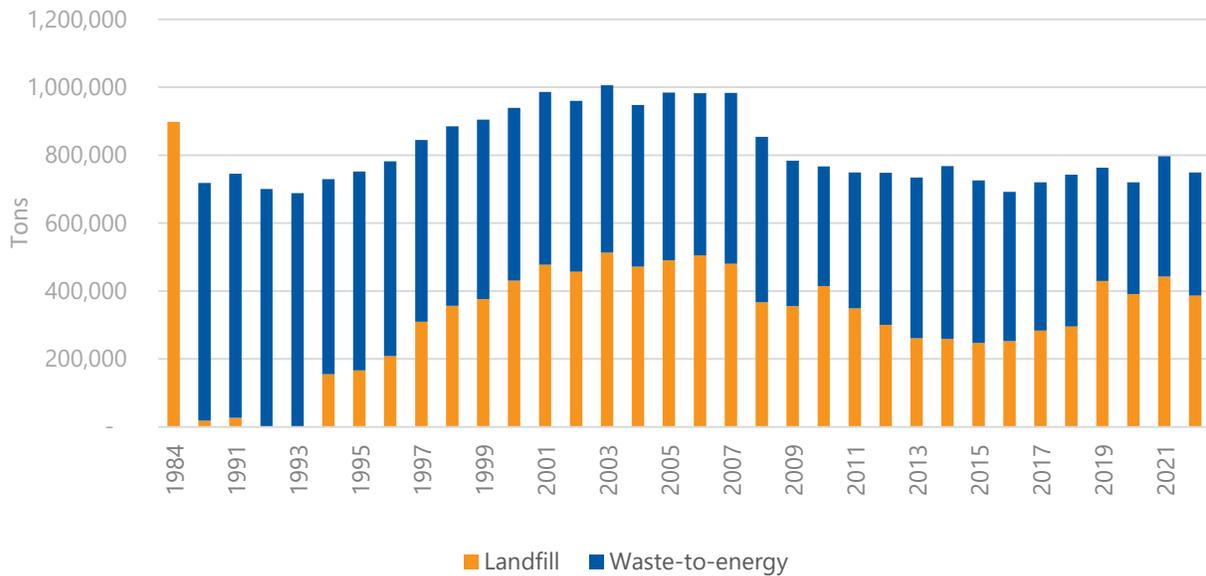
Privately owned waste-to-energy plants also faced economic pressures. The owner of Elk River Resource Recovery Facility (ERRRF), Great River Energy, decided it was no longer economically feasible to continue operating ERRRF. GRE offered to sell ERRRF for \$1.00 to Anoka, Sherburne, or Hennepin counties and continue to operate ERRRF under contract with the county that purchased it. Politically, Anoka County had no interest in staying in the waste business. Sherburne County was too small and could not afford to finance ERRRF operations. Hennepin County's commissioners did not want to buy a facility that was located two counties away. Without an interested government entity, ERRRF closed in 2019, which resulted in a dramatic increase in the amount of trash from the metro area being landfilled.

Trash generation and disposal methods

In 2022, approximately 1.27 million tons of waste was generated in Hennepin County, a 2% decrease from 2021. Of the total waste generated, 41% was recycled or composted, and the rest was managed as trash. Figure 5 shows how trash has been disposed, either in a landfill or processed to recover energy.

How trash has been disposed in Hennepin County

Fig. 5

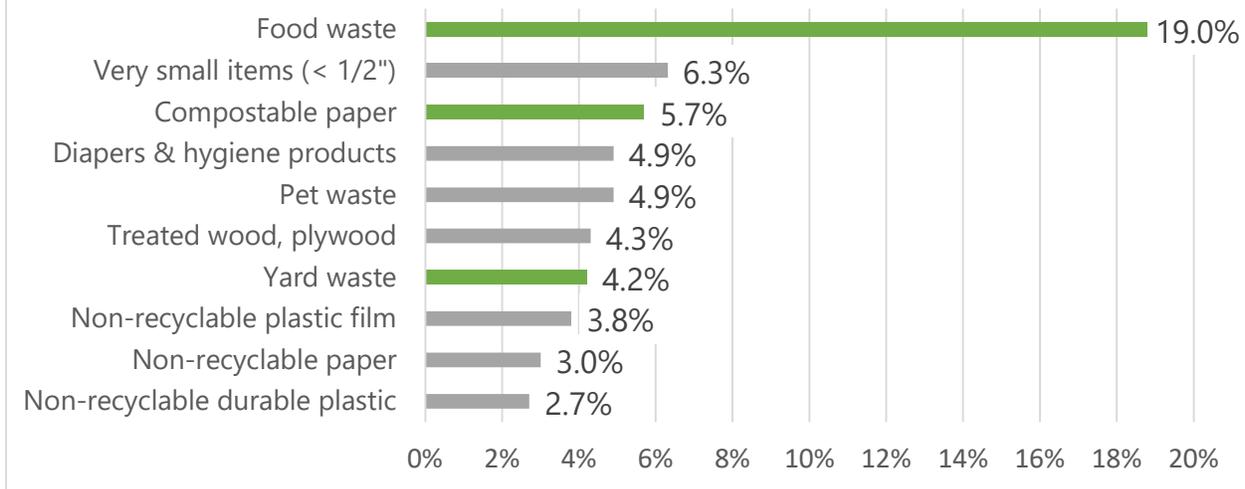


What materials are still in our trash?

Organics are the single biggest opportunity for reducing and diverting trash. Currently, almost 30% of trash is organic material, which includes food waste and other compostable materials. Additionally, 15% is recyclable and 20% is other specialty or hard-to-recycle materials such as mattresses, carpet, building materials, and furniture. There is still a lot of trash – or materials for which the county does not currently have viable recovery options for – in the county’s waste stream. This trash, which represents 40% of the waste generated, includes pet waste, diapers, hygiene products, and nonrecyclable plastics. Figure 6 depicts the 10 most prevalent materials in trash by weight and presented in percentages.

Top 10 most prevalent materials in the trash

Fig. 6



Minnesota's land disposal abatement policy

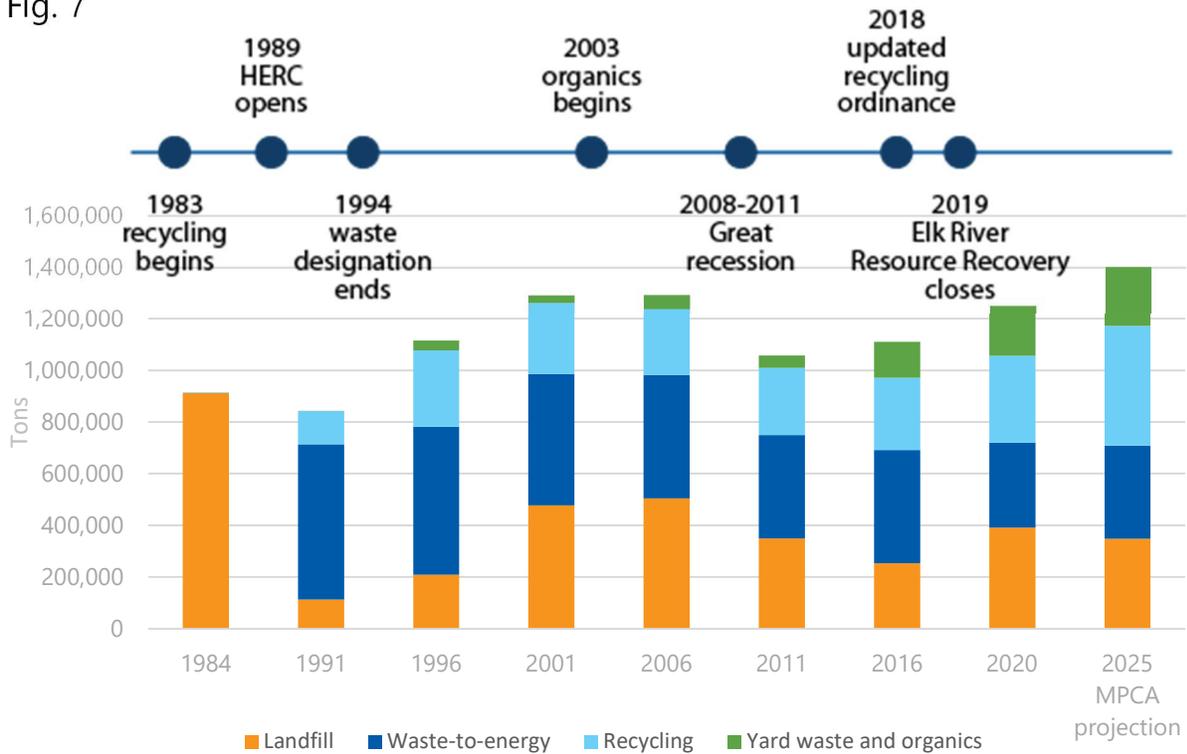
The MPCA's Metro Policy Plan sets goals and policy for the metropolitan solid waste system, including establishing specific and quantifiable objectives for abating the need for and practice of land disposal in the metro region over the next 20 years.

Waste generation in the metro area is forecasted to grow to 3.92 million tons by 2042, an increase of 18% from 2021 levels of 3.3 million tons. The draft Metro Policy Plan has established objectives for waste reduction, recycling, organics recycling, waste-to-energy, and landfilling to address this increase. The objectives are based on the following assumptions:

- Metro counties will achieve the 75% recycling goal rate by 2030 in accordance with Minn. Stat. § 115A.551
- All waste-to-energy facilities will operate at their full permitted capacities
- Landfilling will be minimized, with only 5% of waste managed by land disposal by 2030

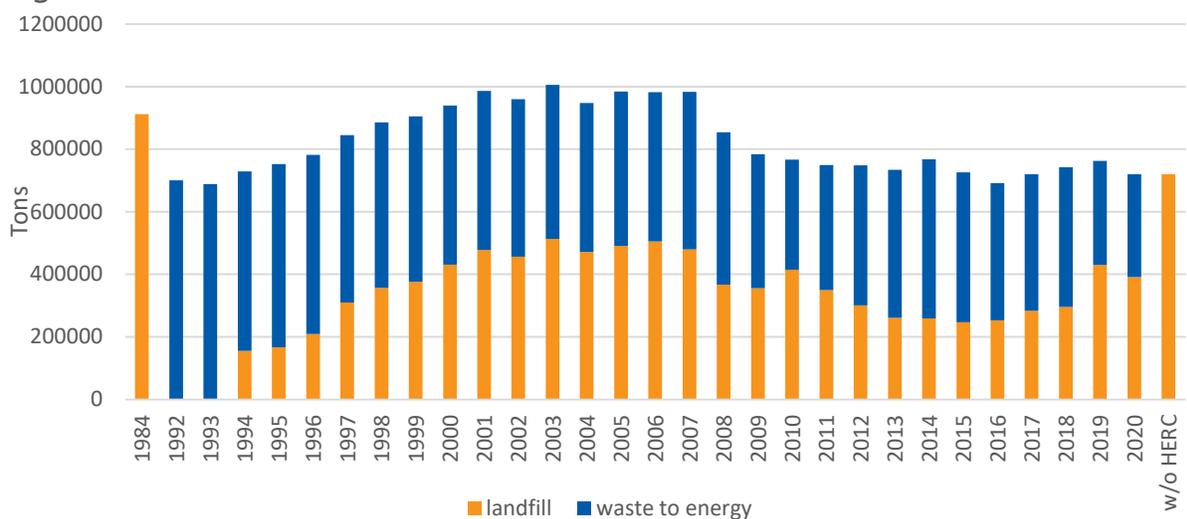
Based on statistical modeling by the MPCA, an estimated 1.55 million tons of waste will be generated in Hennepin County per year by 2042, a 19% increase from 2022. Figure 7 shows waste management in Hennepin County in five-year increments, noting significant milestones. Figure 7 also includes a projection for 2025 waste management based on the MPCA's modeling in the Metro Policy Plan.

Waste management in Hennepin County
Fig. 7



As shown in Figure 8, if HERC were to shut down, all trash generated in Hennepin County will be disposed of in landfills, resulting in disposal methods mirroring results from the early 1980s.

Trash disposal methods in Hennepin County
Fig. 8



MPCA direction on waste-to-energy facilities

In its draft Metro Policy Plan, the MPCA states:

The MPCA “supports waste to energy (WTE) facilities. WTE facilities provide important services and reduce environmental risk. They do not carry legacy impacts that result in later clean-ups. They also result in lower greenhouse gas emissions than landfills because they offset coal power and landfills emit methane, which is a potent greenhouse gas. Finally, WTEs are vital for destruction of medications and drugs that can contaminate drinking water. While the MPCA supports the concept that waste should be managed as high on the waste hierarchy as possible, as is evident from the rest of the policy plan, closing WTE facilities without a strong plan is inadvisable. It will only result in more landfilling and less material recycling, rather than increasing recycling and composting.”

The draft Metro Policy Plan also includes a policy to “assure elected county officials understand the importance of supporting and maintaining WTE facilities” and a required strategy that “counties must continue to support the implementation of Minn. Stat. § 473.848 Restriction on Disposal.” The Restriction on Disposal prohibits disposal of unprocessed metro waste at a landfill unless that landfill meets new landfill standards, and (1) the trash has been certified by the county as unprocessable; or (2) the trash is transferred from a resource recovery facility, no other landfill can accept it, and the trash is unprocessable. Shutting down HERC prematurely before more meaningful waste reduction and recycling requirements are established by the legislature and adequately funded would be voluntarily taking a form of waste processing offline and would put the county out of compliance with the current landfill abatement laws.

Considerations and consequences

This report describes the operational, legal and legislative, financial, and environmental conditions that should be met before HERC can be responsibly retired. In addition to these conditions, this report highlights the consequences – direct and indirect – that will result from a premature HERC closure.

Operational considerations

Buildings

HERC plant

If the county shuts down HERC, the county will need to decommission the plant. Decommissioning a power plant in the downtown area would be complex and expensive. Staff will work with consultants on developing cost estimates to decommission the facility.

The adjacent county parking ramp would remain. Currently, Target Field Plaza’s snowmelt system uses excess heat from the production of energy at HERC to heat antifreeze and pump it through 50 miles of plastic tubing embedded in the parking ramp’s concrete. This warms the concrete and melts the snow without salt or other chemicals. Unless a new source of thermal energy was connected to this system, likely from the downtown district energy system, the sidewalks and driveways would need to be cleared with contracted snow removal services.

Brooklyn Park Transfer Station (BPTS)

Currently, the county transfers trash from the Brooklyn Park Transfer Station (BPTS) to HERC and landfills. This allows the county to control trash volumes delivered to HERC, an important operational component of managing HERC. If HERC were to shut down, there would be no regulated requirement to control trash volumes. The county may wish to evaluate other options for the solid waste portion of the transfer station:

- Shut down the facility.
- Lease or sell the solid waste transfer station capacity to a waste company or municipality that needs to transfer trash to a landfill. The transfer station’s proximity to freeway access and the Elk River landfill could be of interest to waste haulers.
- Repurpose to serve as a reuse center or to manage construction and demolition waste. The Zero Waste Plan includes actions to establish brick-and-mortar reuse and repair centers and to assess the feasibility of a building material reuse exchange warehouse and yard. BPTS could serve as a permanent location for repair clinics or as a hub for upcycling, sharing, refurbishing, and reusing. Alternatively, BPTS could serve as a construction materials bank where materials can be examined, repaired, and shared. Examples of materials that can be amassed and shared include rubble, fill, bricks and

pavers, stone and boulders, clean dimensional lumber, and compost. The county would need to determine how to fund these operations.

- Explore opportunities to recover more recyclable materials. The Zero Waste Plan includes actions to expand drop-off options for harder to recycle items and to study options for recovering recyclable materials from the trash. Harder to recycle items include clothing and other textiles, plastics, and bulky items. Recovering material from the trash could be limited to high value, easily recoverable items (such as cardboard, ferrous metals, and plastics #1 and #2). The challenge is that the current footprint of the transfer station is not large enough to accommodate extensive operations with a lot of equipment. Smaller scale options would need to be evaluated.

Contracts and employment

The county manages six major contracts to operate HERC. If the county board decides to shut down HERC, there will be contract decisions to be made and employment consequences for hundreds of employees.

HERC operator

The county contracts with Great River Energy HERC Services, LLC (GREHS) for the management, operation, and maintenance of HERC. The current contract terminates December 31, 2025. The contract is structured as a pass-through contract with a monthly management fee paid to GREHS.

Ash landfill/metal recovery

The county contracts with SKB Environmental (Waste Connections) for ash disposal, metal recycling, and additional metal recovery at SKB's Industrial Waste Landfill in Rosemount. SKB contracts with GEM-Ash to mechanically recover gold, copper, aluminum, steel, and other precious metals from ash. The contract with SKB expires on December 31, 2025.

Steam sales

The county has two contracts for the sale of steam that is generated at HERC. The first steam sales agreement is with Energy Center Minneapolis LLC, the downtown district energy provider. The contract with Energy Center Minneapolis expires March 2, 2025. The county also sells steam to Twins Ballpark LLC through a contract that expires in 2040.

Power purchase agreement

The county contracts with Xcel Energy for the sale of electricity generated at HERC through a power purchase agreement that expires on December 31, 2024.

HERC apprentice/workforce development

The county contracts with Project for Pride in Living LLC for workforce development program for HERC apprentices. The contract expires on July 31, 2024.

Jobs

A total of 352 jobs are associated with HERC and are summarized in the table below.

Jobs associated with HERC

Table 1

Position	Number of jobs	Employer	Associated with HERC operations	Union representation
County HERC contract managers	3	Hennepin County	Direct	Non-union
Waste loader operators	3	Hennepin County	Direct	Local 49 union positions
Scalehouse attendants	3	Hennepin County	Direct	AFSCME 2822 union positions
HERC GRE operators and administration	53	Great River Energy HERC Services	Direct	66% of employees are members of IBEW union
HERC pathway apprentices	3	Great River Energy HERC Services	Indirect	Members of IBEW
Sub-contractors for HERC outage projects and maintenance	250	Various contractor teams	Indirect	Local union teams complete 95% of the projects
Metal recovery from ash	7	GEM-Ash	Indirect	Non-union
County forestry and natural resources staff	30	Hennepin County	Indirect	Non-union
Total jobs associated with HERC	352			

The county employs three full time employees who oversee the operations at HERC, three AFSCME 2822 scalehouse attendants to manage hauler transactions at HERC and Brooklyn Park Transfer Station, and three full time Local 49 union employees at the Brooklyn Park Transfer Station and to transfer trash to HERC.

Through the operations contract, GREHS employs 53 people to operate HERC, 35 of whom are members of the International Brotherhood of Electrical Workers (IBEW). The average annual

salary at HERC is \$102,000. These employees are highly trained and have an average of 11 years of experience working at the HERC facility. Long-term staff may begin leaving for other employment opportunities if a closure date is identified, which would make operations more challenging and present risks that would need to be mitigated.

To maintain HERC, there are regularly scheduled outages each year to make repairs and ensure safe operation of the facility. Local union labor teams of, on average, 250 contractors complete approximately 95% of the projects, totaling \$7 million in operational projects and \$5 million in capital projects.

In 2022, the county, GREHS, and Project for Pride in Living (PPL) started a HERC operator apprenticeship program to hire three diverse candidates to participate in a nine-month training program. The program provides a pathway to careers in the trades while supporting apprentices with full-time pay, benefits, and union access. Participants receive on-the-job training, classroom learning, and coaching to navigate barriers to employment. After the completion of the first year of the program, one apprentice has been hired by GREHS to a full-time position, another was hired by Hennepin County Facility Services, and the third apprentice is continuing their education and pursuing other employment. Year two of the apprenticeship program started in July 2023 with three new apprentices.

Another company, GEM-Ash, employs seven people who operate equipment that mechanically recovers gold, copper, aluminum, nickel, steel and other precious metals from HERC's ash at the SKB Environmental landfill.³

The county's 30 natural resources positions are funded largely by HERC revenues from the sale of energy and recovered materials, as allowed by state statute (Minn. Stat. § 383B.236). Natural resources programming revenues are outlined on page 35.

Resiliency of the energy infrastructure

One goal of the county's Climate Action Plan is to prepare for and ensure the safety of communities responding to extreme weather events such as flooding, extreme heat and cold, and other natural disasters. The county's Hazard Mitigation Plan identifies power-outages as a hazard, and the county's Continuity of Operations Plan identifies HERC as an essential, top-level priority for waste disposal services and electricity generation.

The county's Climate Action Plan includes a strategy to create a more resilient energy infrastructure. HERC currently plays a role in ensuring redundancy and reliability in the power supply to withstand significant environmental extremes and to reduce the potential for blackouts, power outages, price spikes and public health risks associated with power loss. As more on-site, renewable energy and distributed energy storage becomes available, the role of HERC in a resilient energy infrastructure will decrease.

³ Star Tribune, [How GEM-Ash recovers gold and other metals in HERC's ash](#), Sept 2020

To fully determine the energy impact of ending HERC operations on the downtown electrical grid and related impacts to system reliability, Xcel Energy or others would need to complete an engineering study to determine the impact of taking HERC off the power grid.

Trash disposal and impacts to cities

About 75% of the trash delivered to HERC comes from Minneapolis residents and businesses. This accounts for the majority of all Minneapolis solid waste, both residential and commercial. The remaining 25% is residential trash from primarily Bloomington, Champlin, Deephaven, Excelsior, Hopkins, Loretto, Maple Plain, Medina, Minnetonka Beach, Osseo, Robbinsdale, Richfield, St. Bonifacius, St. Louis Park, Tonka Bay, and Wayzata.

If HERC is no longer available as a disposal option, there will be direct financial impacts on Hennepin County businesses, municipalities, and residents. The county cannot foresee the exact severity of the price hikes, but in a completely privatized solid waste market, it is certain that the county will have no influence on the tipping fees the private sector transfer stations and landfills charge. Businesses, cities, and residents located closer to a landfill than to HERC may see a price increase to what they are currently paying for disposal services at HERC. Those located closer to HERC, where the distance to a landfill is greater, are likely to see larger price increases related to the need to transfer and transport trash further distances. The costs associated with transferring and transporting trash would be passed on from the haulers to residential and commercial customers.

Minneapolis considerations

The City of Minneapolis' solid waste services includes organized collection of 107,000 residential units' recycling, organics recycling, and trash, as well as collection from 200 larger residential or commercial properties, parks, and city buildings. In 2022, Minneapolis delivered nearly 80,000 tons of residential trash to HERC. Minneapolis solid waste services customers recycle and compost 35% of the waste generated.⁴

The City of Minneapolis and its contracted haulers send approximately 60 garbage trucks per day (Monday through Friday) to HERC. In addition, Minneapolis sends one to two transfer trailers per week from its South Transfer Station to HERC.

If HERC were to shut down, the City of Minneapolis will need to identify alternative strategies to manage and haul trash.

Staff do not have information from the City of Minneapolis, but the county estimates that costs would significantly increase based on current available market rates. The tipping fees paid to dispose of nearly 80,000 tons of residential trash would likely rise from the current \$69 per ton at HERC to closer to \$90 to \$100 per ton at metro landfills, including tipping fees, surcharges, transfer costs, and transportation costs. A \$20 to \$30 per ton increase in disposal costs would

⁴ [Minneapolis Solid Waste and Recycling Annual Tonnages report 2018-2022](#)

represent a 30% to 45% increase in the cost to manage trash generated within the City of Minneapolis. Overall, this change could result in \$1.7 million to \$2.5 million of additional costs per year. Those costs will be passed directly on to homeowners and renters.

Trash generated by Minneapolis businesses

About 180,000 tons of trash are produced annually by businesses located in Minneapolis, and more than 90% of those tons are delivered by private waste haulers to HERC. Ceasing operations at HERC would likely mean this trash would be delivered to the Malcolm Transfer Station in southeast Minneapolis before going to a landfill and/or go directly to metro area landfills. Again, the waste fees will, in all likelihood, increase costs for business owners. Assuming the cost to dispose of waste could increase to \$90 to \$100 per ton, a conservative estimate of \$3.4 million to \$5 million in increased costs for Minneapolis businesses per year.

Suburban considerations

Nearly every city in the county has trash delivered to Brooklyn Park Transfer Station and/or HERC. Numerous suburban cities contract directly with waste haulers to dispose of all residential trash at HERC: Bloomington, Champlin, Deephaven, Excelsior, Hopkins, Loretto, Maple Plain, Medina, Minnetonka Beach, Osseo, Robbinsdale, Richfield, St. Bonifacius, St. Louis Park, Tonka Bay, and Wayzata.

Without county participation in solid waste management, it is likely that these cities will need to truck their trash to a transfer station or directly to a landfill in Burnsville, Elk River, or Inver Grove Heights.

Additionally, haulers deliver trash to HERC from businesses and residential accounts across the county, not just from these cities. Without HERC, these haulers would also need to find alternative disposal options and would pass those costs onto their customers.

Consequence:

A HERC shutdown will lead to increased waste removal costs for cities, residents, and businesses in Hennepin County.

Liability assessments

All cities and other public entities that will contract for additional landfilling in the absence of HERC, including Minneapolis, will need to submit a potential liability assessment and plan to the MPCA, accounting for the potential liability to the city and its taxpayers for landfilling the trash. This is because landfilling is lower on the solid waste hierarchy than waste-to-energy, and landfilling would be in violation of the county's (current) solid waste management plan (Minn. Stat. § 115A.471). In general, potential landfill environmental cleanup liability and closure costs across the region will be increased due to increased landfilling.

Control and further consolidation of the solid waste system

The county's research for its Zero Waste Plan showed that more public control over the solid waste system was a defining factor in the success of high-performing communities. The gaps analysis notes that leading zero-waste communities exert a higher level of control over their materials management, hauling, and processing systems by providing direct service, using contracts, or adopting franchise agreements. This has helped those communities increase access to services for all generators, reduce the number of trucks driving down their streets, provide competitive rates to generators, and use incentive structures that encourage haulers to achieve greater levels of diversion and reduced contamination.

The Office of the Legislative Auditor produced a report on Recycling and Waste Reduction⁵ that summarized the implications of a further privatized system:

Several events in the last decade have curtailed counties' ability to manage their garbage. The waste hauling industry has consolidated as small independent haulers have been purchased by larger companies. These large national waste hauling companies also own landfills and transfer stations in Minnesota and surrounding states. These changes in the waste hauling industry have highlighted the tension between counties' efforts to meet state policy goals and private sector interests. Because the larger hauling companies own their own landfills, they have an incentive to maximize the amount of garbage that is landfilled and a disincentive to encourage their customers to recycle. In addition, waste haulers are not paying the full cost of disposal at landfills which includes landfill closure, post-closure maintenance and monitoring, and financial assurance for possible cleanup of future groundwater contamination.

If HERC were to shut down, the county expects further privatization of the system. Local landfills are operated by two multinational corporations – Republic Services and Waste Management. These corporations also offer trash hauler services in the county in addition to four larger independent haulers and 62 smaller haulers, which includes small- and minority-owned business enterprises.

Consequence:

Further loss of control over the solid waste system and risk of consolidation to independent and small haulers will likely contribute to higher waste collection costs.

⁵ Office of the Legislative Auditor [Program Evaluation Report on Recycling and Waste Reduction](#) (2002)

Legal and financial considerations

Compliance with state statute

Minnesota statutes require metropolitan counties to submit to the MPCA solid waste management plans that adhere to and implement the Metropolitan Policy Plan, the most recent draft of which prioritizes landfill diversion and aims to “achieve full use of resource recovery facility capacity” (MPP 2022 – 2042 Draft, 11). The Metropolitan Policy Plan “*shall* address the state policies and purposes expressed in section 115A.02 [the waste hierarchy].” (emphasis added). (Minn. Stat. § 473.149.) The Metropolitan Policy Plan itself is statutorily required to set “quantifiable metropolitan objectives for abating . . . land disposal,” which the county solid waste management plans must implement (Minn. Stat. §§ 473.149, subd. 2d; 473.803, subd. 1c).

The draft Metro Policy Plan also includes a policy to: “Assure elected county officials understand the importance of supporting and maintaining WTE facilities,” and a required strategy that “counties must continue to support the implementation of Minn. Stat. § 473.848 Restriction on Disposal.” (see page 20; MPP 2022 – 2042 Draft, 10; 41).

If the county’s solid waste management plan does not comply with the Metropolitan Policy Plan, the MPCA could reject the county’s plan, and the county would have to revise it and resubmit it for approval (Minn. Stat. § 473.803, subd. 2). It is unclear whether the MPCA would reject a county plan that closed HERC before waste reduction and recycling rates allowed for a simultaneous reduction in the need for landfilling and that made cities and the private sector responsible for disposing of the current volumes of solid waste into landfills. An unapproved solid waste management plan could lead to a loss of the county’s SCORE (the Governor’s Select Committee on Recycling and the Environment) funding (Minn. Stat. § 115A.557, subd. 3).

In addition to the county’s solid waste management plan, the county must comply with the state’s landfill abatement statutes and annually submit a certification report to the MPCA detailing how much unprocessed trash went into landfills in the preceding year, explain why the trash was not processed (which includes waste-to-energy), include a strategy to increase the processing of trash, and report any progress towards that goal. (Minn. Stat. § 473.848, subds 2, 5). The statute indicates the MPCA will approve of a certification report “if it determines that the county is reducing and will continue to reduce the amount of unprocessed waste” (Minn. Stat. § 473.848, subd. 2). Absent that finding, it is unclear whether the MPCA will continue to approve the county’s annual certifications required by this statute.

Finally, if the county were to delegate its solid waste responsibilities to the private sector or to cities (or to a combination of both), there are statutory and financial requirements the county must meet to accomplish this. The county would need to “establish a funding mechanism to assure the ability of the entity to which it delegates responsibility to adequately carry out the responsibility delegated” (Minn. Stat. § 115A.46, subd. 4). Additionally, the county would need to ensure, by “active oversight,” that the private sector accomplishes the goals and requirements of the Metro Policy Plan, which prioritize resource recovery over landfilling (Minn. Stat. § 473.803,

subd. 5). The county would also be required to continue to “enforc[e] waste management law,” which includes adherence to the landfill abatement statutes.

Consequence:

Removing HERC from the county’s solid waste management system would render the county unable to implement the anticipated Metro Policy Plan and the state’s landfill abatement policy, therefore putting the county out of compliance with current state statute. It would also require the county’s ongoing financial support for the cities that take over solid waste responsibilities and active oversight of the private sector and enforcement of waste management laws.

Landfill capacity

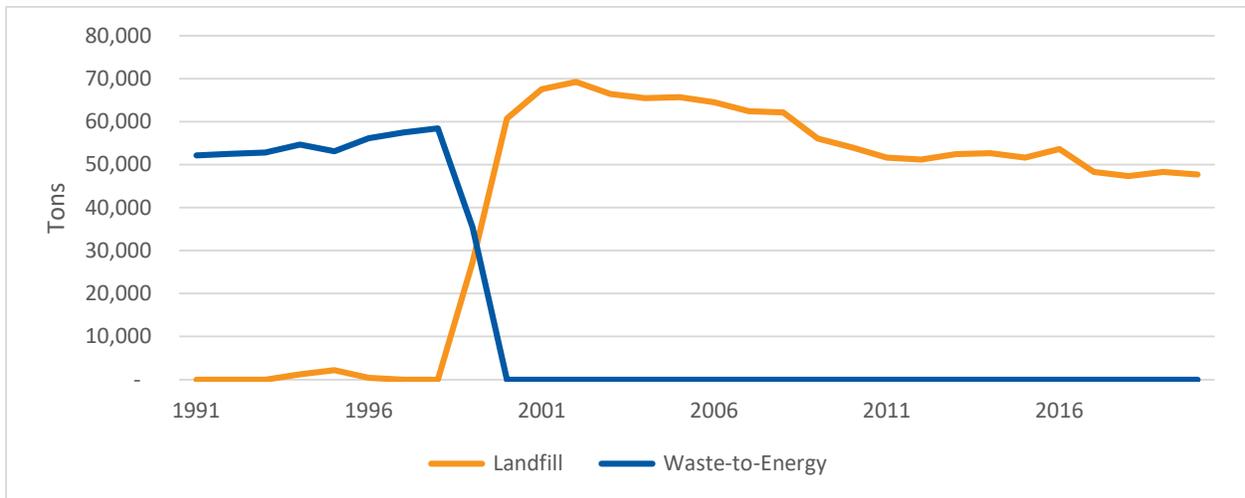
Landfills have finite capacity based on MPCA and local governance permits, space constraints, and the surrounding land use. Landfills in greater Minnesota and surrounding states are less constrained than metro area landfills, but transportation costs and the associated environmental impacts are greater.

State law requires that no metro area landfills expand their capacities without a Certificate of Need (CON) issued by the MPCA indicating that the additional landfill capacity is needed. The MPCA must certify that there are no feasible and prudent alternatives to landfilling, including waste reduction, source separation, and resource recovery (Minn. Stat. § 473.823, subd. 6).

Advocates for HERC’s closure frequently cite HERC’s existence as a barrier to the formation of a fully equitable zero-waste system, asserting that a shutdown date and transition plan would create a concerted effort across local governments and mobilize the county’s resources and will towards achieving zero waste. The solid waste system in Minnesota has two case studies of waste-to-energy plant closures that contradict this theory: the Western Lake Superior Sanitary District’s waste-to-energy facility closure in 1999 (Fig. 8) and the closure of the Great River Energy Recovery Facility in 2019 (Fig. 9).

Western Lake Superior Sanitary District (WLSSD) – Impact of waste-to-energy facility closure on disposal method

Fig. 9

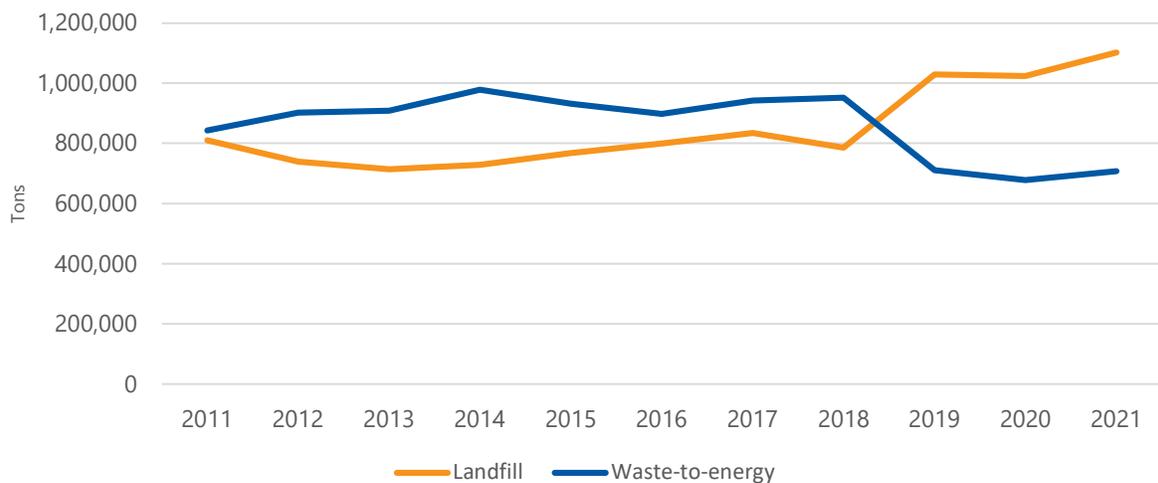


The closure of the waste-to-energy facility in Duluth shows that closing a waste-to-energy facility leads to more landfilling (figure 9) and demonstrates the challenge of making progress toward zero waste.

More recently, in 2019, the Great River Energy Resource Recovery Facility in Elk River closed. The closure of that facility has resulted in more than 250,000 tons of trash per year going to landfills (figure 10) and directly caused the need for landfill expansions in the metro area.

Impact of GRE Elk River closure in 2019 on metro trash disposal method

Fig. 10



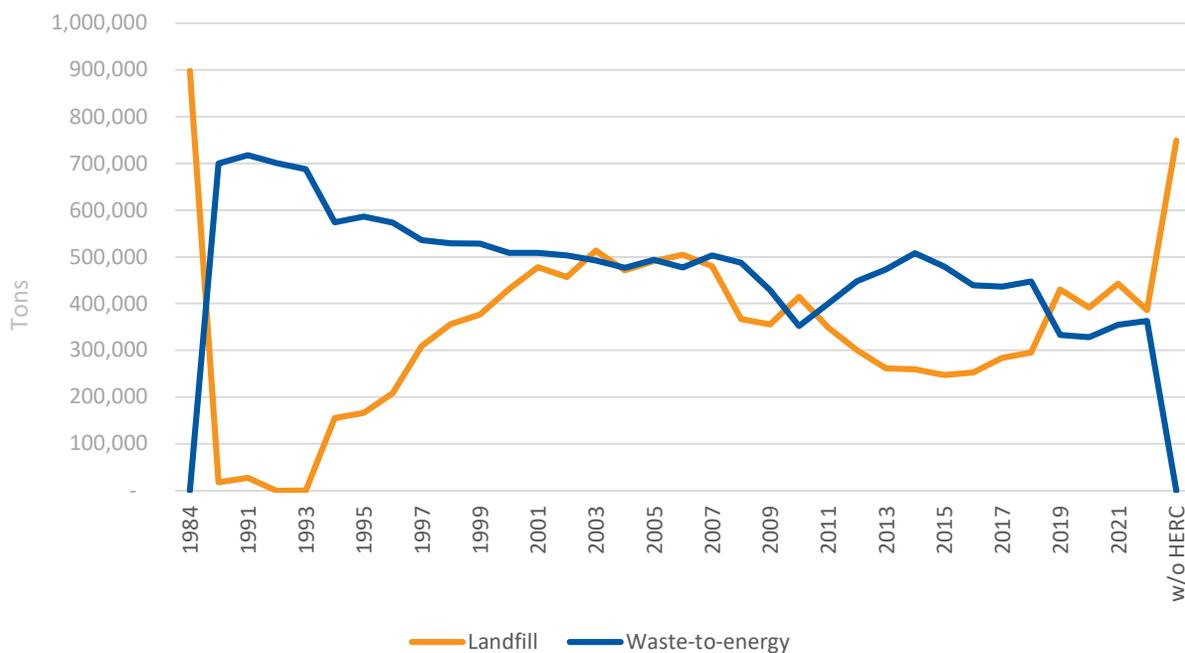
MPCA analysis determined that over the next seven years, assuming HERC remains operational, approximately 6 million tons of trash from the metro area will need to be disposed of in landfills.⁶ With fewer metro waste-to-energy facilities available and the high financial and environmental costs associated with hauling trash to facilities outside the metro, the MPCA decided in 2021 that additional metro area landfill capacity was necessary. Without the expansions, the MPCA had concerns that metro area residents would be unable to manage their trash.

If HERC were to cease operations in the very near future, the recently granted additional landfill capacity will last five years instead of the planned seven years. It is not clear if additional expansion of metro area landfill capacity is possible. Total landfill capacity in the metro area may be limited to 8 to 22 years. The prospect of permitting a new landfill in or near the metro area would be extremely challenging due to location siting, zoning limitations, obtaining a local use permit, and public concerns. The MPCA would be responsible for environmental review and would need to issue the solid waste permit.

As shown in figure 11, if HERC were to cease operations before fully resourcing and implementing the county’s Zero Waste Plan, the county could expect to see a dramatic increase in the amount of trash landfilled, reversing 40 years of solid waste system investment to avoid landfilling.

Hennepin County trash disposal method

Fig. 11



⁶ MPCA [Metro landfill certificate of need process documentation](#)

Consequence:

Closure of HERC within the next several years, given the county's current trash generation levels, will require additional landfill capacity and/or new landfills sited in the metro in the next five years. These options will be logistically, politically, and regulatorily complex and problematic. Alternatively, county residents and businesses will pay to truck their trash further and further away, assuming those facilities will accept metro area trash.

Solid Waste Enterprise Fund

State law requires the county to maintain a Solid Waste Enterprise Fund (Fund 34 or "fund") to receive revenues from the county's solid waste services – including waste tip fees, the Solid Waste Management Fee (Ordinance 15), and sale of HERC's energy and recyclable material (Minn. Stat. §§ 473.811, subd. 9; 400.08). This fund also receives any federal and state grants used to pay for waste, recycling, and other environmental programs. Revenues generated by HERC significantly exceed capital and operating expenditures for the facility and provide the primary revenue source for the county's natural resources programs.

The fund's cash balance from solid waste activities, as of March 31, 2023, was \$49.3 million. The county's debt for the initial construction of HERC (\$134.5 million) was paid off in 2012. The county plans approximately \$5 million to \$6 million per year in capital improvement projects. These investments maintain the facility and preserve HERC's complex environmental controls to not only ensure compliance with air emission permit requirements but also to invest in emission reduction technology to achieve greater environmental performance for residents and safety measures for employees. As of December 31, 2022, the outstanding debt from capital projects was \$37.7 million, and would be fully paid off in 2042 (if it is not added to going forward). This indebtedness is through general obligation bonds tied to 20-year maturities. Currently, revenue generated by HERC pays this debt service obligation. If HERC is decommissioned and no longer generates revenue, the county will need to find other revenue sources to pay this debt.

If the county ceases operating HERC, the county would lose the primary funding source for its current natural resources programming, which includes key climate initiatives such as the one million trees goal. Additional detail on the complexity of the natural resources program revenues are outlined on page 35.

Revenues

The county's 2023 revenue budget for the Environment and Energy department is \$93.6 million. Of this amount, nearly \$59 million will be generated by two different solid waste management fees: the Ordinance 15 Solid Waste Management Fee and the "tip fee."

In 1995, the county established Ordinance 15, the Solid Waste Management Fee, to fund the implementation of state mandates governing waste management programs. The fee is paid by residents and businesses that pay private waste haulers and/or cities for trash pickup. The fee is not applied to recycling or organics pickup services. Fee revenue collected by the county

increases when the volume of trash being collected by haulers increases or when the price of trash collection services increases.

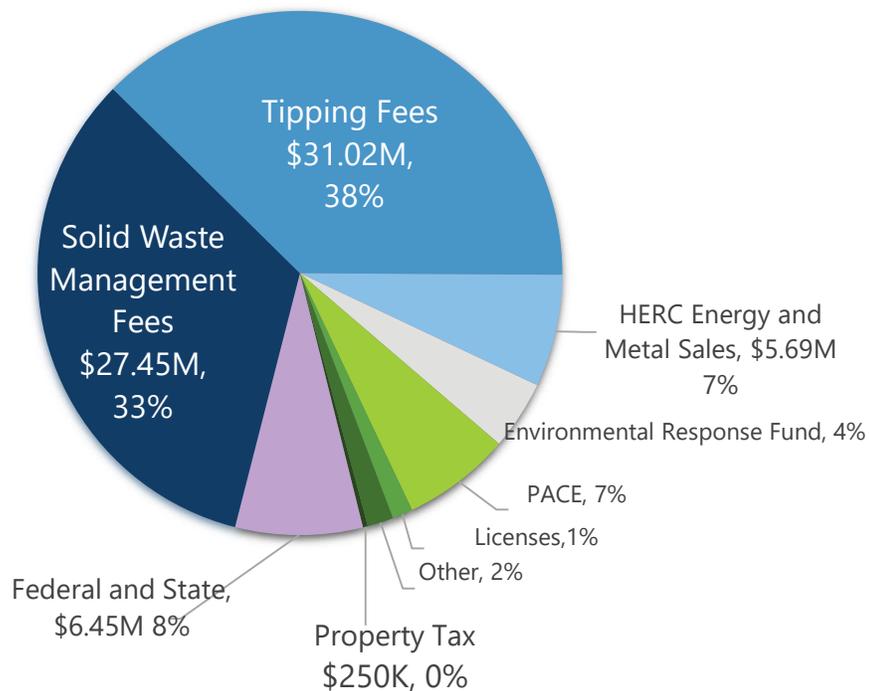
Additionally, haulers pay a “tip fee” to deliver waste to transfer stations, HERC, and landfills. The county’s 2023 contract rate for tip fees at both HERC and BPTS is \$69 per ton, generating an estimated revenue of \$30.4 million. The rate for non-contract tip fees (gate rate) is \$90 per ton. Tip fees are adjusted periodically to keep up with increased costs to operate the system. County revenue from tip fees is also volume-based and increases or decreases based on the amount of trash being delivered to county-owned solid waste facilities.

As shown in Figure 12, tip fees, together with the Solid Waste Management Fee (Ordinance 15), provide the primary sources of revenue to support the county’s solid waste system, including its waste reduction, recycling, and education initiatives, and all of the county’s continued efforts to advance a zero-waste future. In addition to tip fees and solid waste management fees, Hennepin County generates revenues from energy and metal sales from HERC.

Legally, only these HERC-derived commodity revenues, not the tip fees or Solid Waste Management Fee, can be used to fund the county’s natural resource programs (Minn. Stat. § 383B.236). The county sells the energy and metal commodities at market rate. Because the market rates for electricity, steam and metal are volatile, the county budgets conservatively for these revenues each year. Revenue streams from commodity sales include:

- Electricity produced at HERC and sold to Xcel Energy (range: \$3 million to \$4 million)
- Steam produced at HERC and sold to Cordia Energy for the downtown district energy system (range: \$250,000 to \$350,000)
- Steam produced at HERC and sold to the Twins Ballpark (range: \$100,000 to \$135,000)
- Metal recovered from HERC and sold to SKB (range: \$350,000 to \$450,000)

Environment and Energy Department Revenues
 Fig. 11 (2023 budgeted revenues)



Expenditures

The primary expenditures for HERC include:

- Operations agreement: The county contracts with GREHS to operate HERC. The county paid GREHS \$24.56 million in 2022. This covers labor, supplies, and commodities.
- Ash disposal: After combustion at HERC, the volume of waste is reduced by 90%. The county contracts with SKB to screen the waste to recover additional metals and dispose of the remaining ash in a landfill. The county budgeted \$2.8 million in 2023 for managing these services.
- Property insurance and fleet services fees: The county budgeted \$2.2 million in 2023 for these expenses.

During a year when there is an extended maintenance outage at HERC related to repairs to the turbine/generator, tip fees and electrical revenue will decrease, and expenditures may exceed revenues for that budget year. The county plans and budgets for these fluctuations and pays for expenses during these periods using the fund balance.

Environment and Energy Department programming revenues

Without revenues from managing solid waste, projections indicate that the county would experience considerable uncertainty and disruption to the revenues it uses to support the activities of the Environment and Energy Department.

If the county shut down HERC, the county could also expect to stop collecting any revenue from the “tip fee” for trash that is currently delivered to the Brooklyn Park Transfer Station or to the HERC. Tip fees are budgeted at \$30.4 million in 2023. County Ordinance 15 would remain in effect, and the county’s Solid Waste Management Fee would continue to be collected. As seen in Table 2, revenue from this fee is budgeted at \$27.5 million in 2023.

The sustainability of relying on Ordinance 15 as the sole revenue source for Environment and Energy programs is unclear, especially as efforts toward achieving zero waste continue. As the volume of solid waste decreases with zero-waste efforts, revenues from Solid Waste Management Fees may decrease. Furthermore, the cost to implement zero-waste strategies are largely unknown at this time and may exceed the amount of revenue generated by collecting Solid Waste Management Fees.

The 2023 annual budget for waste reduction and recycling is \$11.5 million, with about \$3.5 million of state SCORE dollars passed through to the cities. The 2024 proposed budget includes \$12.4 million for waste reduction and recycling. A conservative estimate would be a 5% increase each year for expanded zero-waste programming. However, it is important to note that advancing zero waste will not be achieved through county programming alone. As identified in the Zero Waste Plan, the county must play an important role in zero-waste infrastructure as well.

Hennepin, Ramsey, and Washington counties collaborate in areas of waste and energy management, including legislation and policy development, communications, and planning and evaluation of waste processing technologies. This collaboration, established through a joint powers agreement between Hennepin County and Ramsey/Washington Recycling & Energy (R&E), is called the Partnership on Waste and Energy.

Both Ramsey and Washington counties are pursuing significant investments in solid waste infrastructure. These counties have jointly invested approximately \$50 million in their Recycling & Energy Center to recover more recyclables and organics from the waste stream. They are also moving forward with plans for an anaerobic digester facility that will be almost three times the size of Hennepin County’s proposed facility. The facility would process waste from Ramsey and Washington counties and other entities. The estimated annual cost of their anaerobic digestion waste delivery contract is \$6 million over a 20-year period. In addition, Ramsey County has plans for a new \$29 million recycling center, and Washington County has plans for a new \$18 million residential waste disposal facility.

Apart from the capital budget maintenance projects at HERC, Hennepin County last invested significant resources into solid waste infrastructure in 2000 with an expansion at the Brooklyn Park Transfer Station.

Natural resources programming revenues

Natural resource program expenditures are budgeted at \$6.3 million in 2023, with \$4.5 million of funding coming from the sale of energy and recovered materials from HERC (see Table 2).

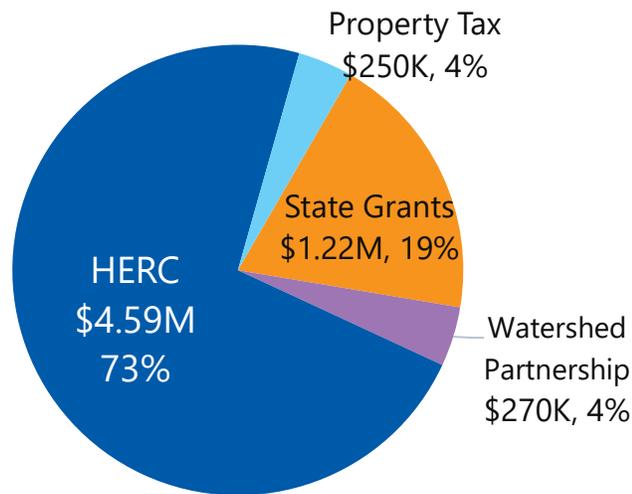
Historically, land and water programs, including conservation work and the Lake Minnetonka program, were funded primarily by property tax. In 2009, the state legislature allowed the county's Environment and Energy Department to transition these costs away from property tax and finance them with revenues derived from HERC's energy and recovered materials sales instead (Minn. Stat. § 383B.236).

The recovered energy sales revenue created an opportunity for the county to manage trees on county property and meaningfully address emerald ash borer, saving the county hundreds of thousands of dollars, typically funded with property tax, by completing much of this work with the county's own foresters. The county began expanding conservation easement work as the county assumed the role of the Soil and Water Conservation District. The Climate Action Plan further prioritized the county's natural resources work to sequester carbon, manage increased stormwater, and reduce the heat island effect.

The Department's 2023 budget significantly ramps up investments needed over the next several decades to address climate change, adding FTEs and dollars to the department's core functions to advance and expand climate initiatives. This work is largely funded by revenues from HERC (see Figure 13). The revenue generated from the sale of energy and recovered materials cannot continue to sustain the level of investment needed to continue these initiatives.

Funding sources for natural resources and forestry programs

Fig. 13 (2023 operating budget)



If HERC were to shut down prematurely, forestry, natural resources, and some climate programming would need to significantly and immediately scale back, or the county would need to allocate funds from property tax or other sources to fund these programs. State law prohibits Hennepin County from accessing other solid waste management revenues not derived from the sale of energy and recovered materials to support these initiatives (Minn. Stat. §§ 473.811, subd. 9 & 383B.236). Scaling back these activities would negatively impact the county's progress toward reaching its climate action goals.

Some of the county's natural resource programs are statutorily mandated, including enforcement of the Wetland Conservation Act and Buffer Law, the agricultural inspection program including noxious weed control, and the Lake Minnetonka program.

Consequence:

If HERC shuts down without a clear and robust plan for alternative funding, the board will need to significantly scale back or eliminate much of the county's current forestry, natural resources, and climate action programming.

Environment and Energy Department revenues and expenses

Table 2

Solid Waste & Environmental Protection: Revenues and Expenses, by program area

Dollars in millions

REVENUES	<u>2023 Budget</u>	Projected impact without HERC
Solid Waste Management programs		
Revenues restricted to solid waste management		
Ordinance 15 waste collection fees	27.5	Decrease
Trash tipping fees	30.4	Eliminated
Organics tipping fees	0.7	Unaffected
State grants (SCORE recycling grants)	4.5	Unknown
Other misc. revenues	1.1	Unaffected
Revenues not restricted to solid waste purposes		
Sale of energy and recovered materials from HERC problem materials, and recyclables from drop-off programs	5.7	Eliminated
Transfers to Natural Resources & Forestry	(4.6)	Eliminated
Subtotal Solid Waste Revenues	66.5	Decrease
Environmental Protection programs		
Natural Resources & Forestry programs		
Property taxes	0.3	Unaffected
State grants	1.2	Unaffected
Transfers from solid waste revenues	4.6	Eliminated
Reimbursements for project management and implementa	0.3	Unknown
Contaminated Lands programs		
Commercial Hazardous Waste programs	1.0	Unaffected
Subtotal Environmental Protection	8.1	Decrease
E&E Administration	10.0	Unknown
TOTAL SOLID WASTE & ENV. PROTECTION REVENUES	84.6	Decrease
Impacts w/o HERC & growing climate priorities		
EXPENSES	<u>2023 Budget</u>	
Solid Waste Management		
Solid Waste management programs	56.8	Decrease
Waste Reduction, Recycling, and Organics programs	9.8	Growing
Environmental Protection		
Natural Resources & Forestry programs	6.3	Growing
Contaminated Lands programs	1.5	Unaffected
Commercial Hazardous Waste programs	1.6	Unaffected
E&E Administration	8.1	Unknown
TOTAL SOLID WASTE & ENV. PROTECTION EXPENSES*	84.1	Decrease

*Does not include the Property Assessed Clean Energy (PACE) or Environmental Response Fund (ERF) programs. These programs are not funded with solid waste management related revenue sources.

Environmental considerations

Climate impacts

Methane emissions

Greenhouse gas mitigation experts⁷ continue to recognize waste-to-energy as a transitional climate solution because it reduces methane emissions by keeping trash out of landfills. When food waste, paper, wood, and other biogenic materials in trash end up in landfills, they create methane, which is 28 times more potent of a greenhouse gas than carbon dioxide over a 100-year period.⁸ From a climate perspective, until most of the biogenic waste is removed from the waste stream or recycled, it is better to manage biogenic waste with waste-to-energy than to dispose of the waste in landfills. Currently, about 50% of trash generated in Hennepin County is biogenic material.

Modern, local landfills have gas recovery systems that capture 75% to 85% of methane gas and flare it or use it as fuel.⁹ Based on information provided by the MPCA, the landfills in Burnsville, Elk River, and Inver Grove Heights are flaring this gas – meaning the methane is burned without recovering energy. This produces carbon dioxide and other pollutants. The Inver Grove Heights landfill is both flaring and converting some gas to fuel. The Elk River landfill has a renewable natural gas plant coming online in the next 18 months. The Burnsville landfill is exploring adding a renewable natural gas plant.

Landfills that flare gas have three times higher global warming impacts than HERC. This is calculated by using standard protocols to compare the carbon dioxide equivalent (CO₂e) emission offsets from the energy generation associated with HERC with a landfill that flares its landfill gas. The difference in overall CO₂e emissions from the two scenarios is approximately an increase of 52,000 tons of CO₂e per year for landfilling, or approximately 150% of the annual net CO₂e emissions from HERC. If local landfills were to add renewable natural gas plants, the climate impacts depend on whether the renewable natural gas is converted to electricity or used as vehicle fuel. If converted to electricity, the difference in overall CO₂e emissions is approximately an increase of 18,000 tons of CO₂e per year for landfilling, or approximately 52% of the annual net CO₂e emissions from HERC. If converted to fuel and replacing diesel fuel, the CO₂e emissions per year for landfilling is comparable to HERC.

The MPCA compared the climate impacts of processing trash into energy to disposing of trash in a landfill over time. This is important because a ton of trash put in a landfill will continue to produce methane over many decades. As depicted in Fig. 13, the example assumes one ton of trash per year for each disposal method for 25 years. In a landfill, one ton of trash will emit some methane initially. Eventually, conditions in the landfill develop where anaerobic digestion is

⁷ Project Drawdown Climate Solutions, [Waste to Energy](#)

⁸ USEPA [Overview of Greenhouse Gases](#)

⁹ USEPA Landfill Methane Outreach Program, [Landfill Gas Energy Projects](#)

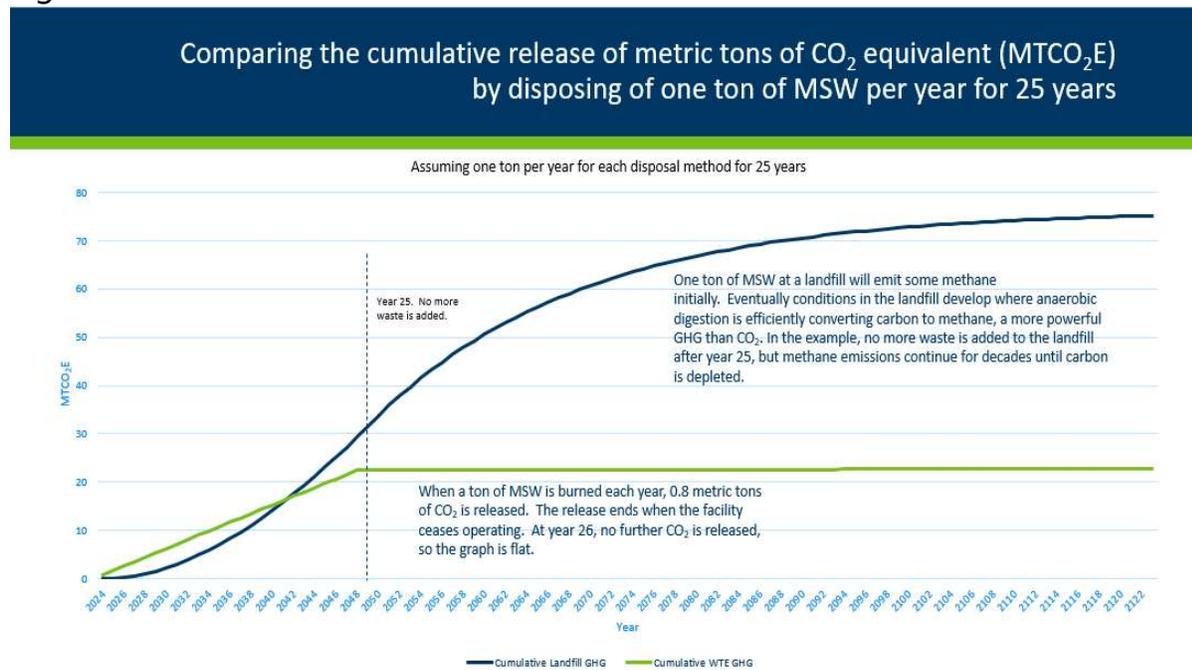
efficiently converting carbon to methane. In this example, no more trash is added to the landfill after year 25, but methane emissions continue for decades until carbon is depleted. By comparison, when a ton of trash is burned each year, 0.8 metric tons of carbon dioxide is released. The release ends when the ton of trash is completely burned. In this example, no further carbon dioxide is released at year 26, so the graph is flat.

Recent studies¹⁰ using direct monitoring of landfills show the current emission factors vastly undercount methane and other landfill emissions, so the climate impact of landfilling waste over processing through waste-to-energy is even greater than estimated.

Consequence:

If HERC shuts down when the current volume of trash is being produced in the county and when a significant portion of that trash is still organic material, the shutdown will result in an immediate and significant increase in landfilling and a parallel increase in methane released from those landfills, putting the state and the county further from established greenhouse gas emission reduction goals.

Comparing climate impacts of trash disposal methods over time (source MPCA)
Fig. 13



¹⁰ Environmental Integrity Project, [Notice of Intent to the USEPA](#), December 9, 2021

Metal recovery

Metal in the trash is also recovered from the ash from HERC. Approximately 16,000 tons a year are recovered, which is more than double the amount of metal recovered through curbside collection programs in Hennepin County. Comparatively, local landfills do not process trash to recover metal before land disposal. Producing new metal to replace the amount currently recovered at HERC and recycled would produce approximately 43,000 CO₂e in greenhouse gas emissions each year.¹¹

Consequence:

If HERC shuts down without an alternative method for recycling large amounts of metals from the waste stream, that metal will go straight into landfills and more greenhouse gases will be emitted in the production of new metal.

Electricity production

The electricity produced at HERC powers the equivalent of 25,000 homes annually. A ton of trash processed at HERC creates electricity to run a house for 18 days. A ton of trash buried in a landfill that converts its landfill gas to electricity would run a house for 3 days.¹²

As more energy in the electrical grid is generated from renewable sources, the climate benefits of waste-to-energy will decrease. Minnesota recently updated its renewable energy standard to require 100% carbon-free electricity by 2040. Xcel Energy's renewable electricity percentage is currently 34%.¹³ The steam produced at HERC and put into the downtown district energy system, owned by Cordia Energy, offsets the use of natural gas, the system's primary fuel source. Further, natural gas is still used to heat two-thirds of Minnesota homes.¹⁴

Consequence:

With the shutdown of HERC, annual electricity used by 25,000 homes and steam to heat downtown buildings on the district energy system will be eliminated and no longer offset the use of fossil fuels by energy producers.

Water

Impacts to both groundwater and surface water from landfills have traditionally been tied to the production of leachate.

¹¹ [EPA CCCL Emission Factor Hub](https://www.epa.gov/climateleadership/ghg-emission-factors-hub). April, 2023. <https://www.epa.gov/climateleadership/ghg-emission-factors-hub> and World Steel Association, <https://worldsteel.org/wp-content/uploads/Life-cycle-inventory-LCI-study-2020-data-release.pdf>

¹² Calculations made by Hennepin County staff based on US Energy Information Administration estimate of 900 kWh/month of electricity for an average house, and EPA comparison of kWh/ton recovered from WTE (600 kWh/ton) vs landfill gas recovery (65 kWh/ton),

¹³ [Xcel Energy](#) Certified Renewable Percentage, 2021

¹⁴ [Decarbonizing Minnesota's Natural Gas End Uses \(e21initiative.org\)](https://www.e21initiative.org/)

Many operating landfills have documented impacts to groundwater. These impacts are largely connected to a “legacy” unlined portion of the landfill that has been capped and a modern, lined landfill has been developed adjacent to the unlined portion.

Subtitle D regulations of the federal Resource Conservation and Recovery Act (RCRA) include proscriptive requirements for the location, design, construction, operation, groundwater monitoring, closure, post-closure care, and financial assurance of landfills. The MPCA has been given the authority to administer the Subtitle D requirements. This is done through the facility permitting process that also addresses the liner, leachate collection, and proper leachate management.

Landfill leachate is managed in several ways. Many facilities accumulate and temporarily store leachate in tanks, while some use ponds. Most leachate is sent to publicly owned wastewater treatment facilities for treatment, and the treated water is discharged along with treated municipal wastewater. Some leachate is recirculated in the landfill to enhance waste degradation with the goal of achieving relatively inert material.

Modern landfills can still leak. In fact, leakage is assumed in design and modeling calculations even given full compliance with RCRA in design, construction, and operation. Other factors leading to leaks include mismanagement, accidents, and extreme weather. Leak detection systems are installed underneath the leachate sumps, which are the most likely places a liner will leak. The MPCA requires landfill operators to test groundwater monitoring wells to determine whether waste pollutants have leached from the landfill. Leaks from areas of the liner other than the leachate sumps would eventually show up in the monitoring wells but would take a long time to contribute at a level to detect in groundwater.

Following closure, the rules require a minimum 20-year period of post-closure monitoring and maintenance. The goal is to continue post-closure care until the facility reaches a relatively stable state based on leachate, gas quantity and quality, physical stability and environmental monitoring.

When landfills seek to expand, the project may require environmental review in the form of a mandatory or supplemental Environmental Impact Statement (EIS). The EIS will assess impacts and mitigation measures associated with:

- Groundwater quality and areas of impact in the vicinity
- The groundwater monitoring plan
- Predicted future groundwater levels and flow direction using existing and updated information
- Potential impacts to nearby drinking water wells
- Potential changes in impacts to groundwater resulting from the additional weight
- A comparison of the pre-expansion surface water discharge rates to the post-project surface water discharge rates for 2-year, 10-year, 500-year storm events and extreme

flooding events, and identification of potential impacts and suggested measures to mitigate those impacts

- An assessment of the change in drainage to wetlands located within the new development area for the pre-expansion and post-project conditions

A modern, well-maintained landfill in compliance with its permits poses little risk to groundwater or surface water at the landfill location. But with leachate being treated at a wastewater treatment facility, there is the potential for pollutants to be discharged into surface water with the treated wastewater.

HERC has two sewer discharge permits: a National Pollutant Discharge Elimination System (NPDES) permit is for cooling tower blowdown that discharges to surface water through the storm sewer and a Metropolitan Council Environmental Services (MCES) permit is for sanitary and industrial discharge to the water treatment plant. HERC meets all water discharge permit requirements and poses little risk to surface waters.

Consequence:

A shut down of HERC will result in increased risk for water contamination as the amount of unprocessed waste being landfilled climbs.

Forever chemicals

Per- and polyfluoroalkyl substances (PFAS) have been commonly used for their water- and grease-resistant properties in many industrial applications and consumer products. This includes carpeting, waterproof clothing, upholstery, food paper wrappings, cookware, personal care products, fire-fighting foams, and metal plating. Sometimes called “forever chemicals,” PFAS are persistent and can bioaccumulate, meaning the amount builds up in the body over time. PFAS have been linked with certain cancers, immune deficiencies, and developmental problems.¹⁵

According to the MPCA, PFAS in landfills can migrate into the leachate, which is often treated at a wastewater treatment facility. Few existing removal systems installed at landfills or wastewater treatment plants are capable of removing PFAS, creating the potential for PFAS to be discharged into surface water with the treated wastewater. A recent report¹⁶ commissioned by the MPCA found that the removal and destruction of PFAS from certain wastewater streams in Minnesota could cost an estimated \$14 billion to \$28 billion over two decades.

While there is uncertainty that waste-to-energy (WTE) facilities consistently maintain the operating conditions required to completely destroy PFAS, thermal destruction is among the mitigation technologies suggested by the U.S. Environmental Protection Agency (EPA) to control

¹⁵ Environmental Protection Agency, [PFAS explained](#)

¹⁶ Minnesota Pollution Control Agency, [News release and report on unaffordable costs of destroying PFAS in wastewater](#)

PFAS in air emissions.¹⁷ HERC, along with 144 other waste facilities, is likely to be asked to participate in the MPCA's PFAS monitoring plan¹⁸ to collect and analyze PFAS air emissions data in HERC's annual emissions test. This data will help the MPCA and federal agencies develop minimization strategies to reduce PFAS releases into the environment. Results of this data collection effort are expected in 2025.

Consequence:

Shutting down HERC before research on whether waste-to-energy facilities are able to completely destroy PFAS means the county could be losing a potential solution to the problem of forever chemicals.

Air pollution

Health risks

In 2021, the county contracted with Barr Engineering to complete an evaluation of HERC's air emissions and associated health risks using the MPCA's MNRisks analysis tool. The analysis provided context about the relationship between air emissions (the pollutants released into the air from numerous types of sources), air quality (the concentrations of pollutants in the air we breathe), and risk (potential health impacts associated with outdoor air quality). The EPA, MPCA, and Minnesota Department of Health (MDH) use the science of "risk assessment" to characterize the nature and extent of potential health impacts to people due to chemical contaminants in the environment (air, water, and soil).

To summarize the findings:

- HERC operates air pollution control equipment to reduce pollutants in the exhaust released at the stack.
- MPCA's risk assessment data indicates that cancer and non-cancer risks from HERC emissions are well below MDH's incremental risk thresholds.
- Like other permitted facilities, the MPCA does not allow HERC to emit pollutants in amounts that would increase cancer or non-cancer risks above incremental risk thresholds.
- Emissions in Hennepin County are dominated by mobile (72%) and non-point (24%) sources, and those are sources more likely to have greater health impacts on residents in the area compared to permitted sources like HERC.
- Based on MPCA data, the overall impact from HERC's emissions, in isolation, is negligible, and especially when compared with the current background cancer and non-cancer levels that result from all other sources, such as vehicle emissions, unpermitted emissions sources, other environmental sources (water and soil contamination), poor indoor air

¹⁷ US Environmental Protection Agency, [Interim Guidance on the Destruction and Disposal of PFAS and Substances and Materials containing PFAS](#)

¹⁸ Minnesota Pollution Control Agency, [PFAS Monitoring Plan](#)

quality in homes and workplaces, smoking, limited access to health care, and food insecurity.

- HERC emissions are not likely to cause more cancer or non-cancer health effects in one part of the community than in another. MPCA's data indicates no disproportionate impact on any particular census tract; rather, it shows similar and low impact to all populations.
- Shutting down HERC will not result in observable health outcome improvements for residents of Minneapolis or its suburbs.

Consequence:

Closure of HERC will increase truck transport of trash throughout the county and outside of Hennepin County to landfills, resulting in more than 10,000 additional trips by semi-trailer trucks and the associated vehicle emissions annually.

Air pollution from landfills

Comparing air pollution from managing waste at HERC to disposal at landfills is challenging. The MPCA states: "the comparative standing of landfills will be quite limited when it comes to air emissions because there has been a persistent lack of actual data about air emissions from the surface area of landfills. While waste-to-energy plants must provide continuously or regularly monitored emission data for a specific set of air pollutants, landfills do not have to collect any continuous data from the surface of the landfill, only from the landfill-gas collection system and only if they have one."¹⁹

The following air pollutants are emitted from landfills through several means, including from the waste directly through the landfill cover, from the combustion of landfill gas, or from trucks and compaction vehicles at the landfill:

- Criteria pollutants: carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM), sulfur dioxide (SO₂), and volatile organic compounds (VOCs).
- Air toxics and hazardous air pollutants: vinyl chloride, ethyl benzene, toluene, and benzene
- Greenhouse gases: carbon dioxide (CO₂), methane and nitrous oxide calculated as carbon dioxide equivalents (CO₂e).

Air pollution from landfill fires

The risk of fires is another air quality concern associated with land disposal of trash. The growing use of lithium-ion batteries in electronics, power tools, flashlights, toys, and other products increases the risk of fires in trash caused by damage to these batteries.²⁰ Fires are very difficult to control in a landfill because of the large fuel source. Once put out, landfill fires can continue

¹⁹ MPCA Program Management Decision Memo, Issue Waste-to-Energy in an Integrated Solid Waste Management System, Effective date: June 14, 2010.

²⁰ [An Analysis of Lithium-ion Battery Fires in Waste Management and Recycling \(epa.gov\)](https://www.epa.gov/air-pollution/lithium-ion-battery-fires-waste-management-and-recycling)

to smolder and emit toxic smoke for weeks. Contaminants of concern for landfill fires include carbon monoxide, hydrogen sulfide, benzene, VOCs, dioxins/furans, heavy metals, and PAHs.²¹ Landfills are not equipped with air pollution control equipment to reduce the emissions impact when fires do occur. Depending on the size and location of the fire, the landfill liner and leachate and gas collection systems can be damaged. According to the MPCA, there have been 26 fires at municipal solid waste landfills in Minnesota since 2010.

The most recent landfill fire occurred at the Rice Lake Landfill in May 2023. By documenting the response to the emergency, Rice County provided an example of relevant concerns associated with landfill fires.²²



Source: Rice County

The fire burned for four days. Air quality monitoring equipment was ordered but not available for three days due to limited regional supplies. When residential properties within one mile of the landfill were tested for particulates and gases, air quality met standards. The cause of the fire remains unknown. Rice County is now determining if the landfill liner was damaged by the fire.

Legacy impacts of landfiling

According to the MPCA, landfills must be managed forever to prevent groundwater contamination, and decomposing waste will continue to release greenhouse gases. Further, trash in landfills can overheat, causing underground fires, and continue to compact, creating unstable ground that cannot be used for future development.²³

In 1994, the Landfill Cleanup Act created Minnesota's Closed Landfill Program so the state could effectively protect human health, safety, and the environment associated with certain closed, state-permitted, mixed municipal solid waste landfills throughout Minnesota. The program's goals include managing the risks to human health and the environment associated with:

- Human exposure to landfill waste
- Contaminated groundwater and surface water emanating from the waste area
- Landfill gas migrating from the waste that could threaten nearby structures as well as be released to the atmosphere as a greenhouse gases
- Chemical vapors released from shallow contaminated groundwater into structures

In 1999, the Minnesota Legislature established the Closed Landfill Investment Fund (CLIF) for the purpose of setting aside and investing money for future post-closure care of the Closed Landfill

²¹ Landfill Fire Response Guide for Surface and Subsurface Fires at Solid Waste Facilities
October 2018 Version 2.0 Referenced from USFA-FEMA

²² [Landfill fire updates | Rice County, MN \(ricecountymn.gov\)](https://www.ricecountymn.gov/)

²³ MPCA Waste-to-Energy GHG presentation

Program landfills. The Closed Landfill Program is responsible for the permanent, long-term care of the program landfills.

Each year, the Closed Landfill Program projects its future, 30-year financial obligations and liabilities required to care for the landfills. The program's current contractual obligations over the next 30 years are anticipated to be \$309 million.

Financial obligations have increased significantly due to:

- The addition of three landfills to the Closed Landfill Program, including the Freeway Landfill in Burnsville
- The need to conduct vapor investigations and increased monitoring and impacts of PFAS and 1,4-dioxane (another cancer-causing chemical that can leach from products that are difficult to remove from water)
- Better understanding of the extent and magnitude of groundwater contamination

An increase in future obligations is anticipated to evaluate alternative technologies to address landfill greenhouse gases and remove PFAS and 1,4-dioxane from the groundwater at several closed landfills.

Stable, long-term funding is needed to address the public health and environmental risks posed by the 111 closed landfills in Minnesota, including three in Hennepin County in Eden Prairie, Hopkins, and Medina.²⁴ The program will depend on three funding sources: the Remediation Fund, the CLIF, and state general obligation bonds.

Consequence:

If HERC were to shut down, given the county's current waste production and recycling rates, an additional 365,000 tons of trash produced in Hennepin County for a total of 750,000 tons would be landfilled each year. The county cannot forecast the exact liability risks or considerations that will accompany this dramatic increase in landfilling waste, but examining and understanding the region's current and legacy landfilling landscape is instructive.

Policy and legislative considerations

The county's Zero Waste Plan includes 17 zero-waste policy actions that are key to realizing a zero-waste future (see [Zero Waste Plan](#) pages 32 to 38). Drafting, passing, and implementing these policies is not solely in the control of the county, so following through with these actions requires working across county and city borders, building coalitions, and long-term planning. Their implementation will require the county to collaborate with partners, stakeholders, and lawmakers to advocate for the adoption of the policies at the state legislature and federal action.

²⁴ MPCA Closed Landfill Program [GIS Map](#)

State legislative action

If HERC's shutdown is contingent on getting to zero waste, the state legislature needs to prioritize these policy actions to advance zero waste and protect the environment:

Adopt policies on par with national zero-waste leaders

- Adopt extended producer responsibility (EPR) for packaging
- Change organized collection process and hauler licensing
- Adopt and enforce material bans at landfills for all materials that emit methane – food/organics, paper/cardboard, wood, and textiles
- Eliminate the diversion of solid waste management tax for other purposes and provide to local government for recycling programs as intended
- Set a 50% or higher diversion requirement for construction and demolition (C&D) waste

Invest in recycling infrastructure, advancing circularity and waste reduction and reuse

- Stop diverting solid waste management tax revenue to the general fund, instead provide to local government through increasing SCORE recycling grants
- Fund a pre-processing facility in Hennepin County to recover reusable and recyclable materials from the trash before disposal (estimated cost \$100 million to \$200 million)
- Fully fund the anaerobic digestion facility
- Increase state taxes/fees on landfills to fund county zero-waste programs
- Improve statute language on volume- or weight-based pricing to incentivize waste reduction (115A.9301)
- Increase fees on construction and demolition (C&D) waste disposal to fund reuse and recycling of building materials
- Invest in market development for both traditional and hard-to-recycle items
- Provide resources for MPCA to enforce state statutes (115A.151, etc.)
- Increase the Solid Waste Processing Facilities Capital Assistance Program (CAP) grant amounts

Reduce disproportionate impacts from the solid waste system

- Direct funding to areas of environmental justice concern
- Phase in emissions requirements for waste trucks (use of compressed natural gas, % electric, etc.)
- Update landfills to achieve greater environmental outcomes – require gas recovery systems and monitoring and reporting on air emissions.

Amend existing policies to remove disincentives

- Adopt a food waste compost requirement in MNDOT specs (3890)
- Reduce barriers for businesses to use refillable containers
- Revise building codes and zoning ordinances that inhibit recycling
- Revise the current EPR system to cover collection costs for all electronic waste

Federal action

On the federal level, county staff recommend supporting policy changes and initiatives that lead to greater standardization and coordination across the country to reduce confusion and inconsistencies for brand owners, manufacturers, consumers, and local waste management systems. Areas where standardization and coordination are most needed include improve product labeling, both to indicate recyclability or composability and perishability of food, passing extended producer responsibility legislation, implementing sustainable product design standards, removing barriers in the food code to allow for reusable packaging,, mandating single-use plastics reduction and pollution prevention, and reducing the toxicity of plastics additives. Increased federal funding for recycling market development, zero-waste infrastructure, and Justice40 initiatives that channel benefits to disadvantaged communities would also be highly impactful.

County-led efforts

The county board will also need to prioritize zero-waste efforts in their legislative priorities and advance zero-waste policies within the county's authority. Staff have prioritized the following county-led policy efforts as identified in the Zero Waste Plan:

- Revise the Recycling Ordinance 13 to provide clarity on existing language and expand requirements
- Require the use of food waste compost in county construction and landscaping projects
- Bolster the county's sustainable purchasing policy using MPCA guidance
- Transition to organized waste collection countywide, which cities would implement
- Mandate participation in recycling and composting programs, which cities would implement
- Evaluate the county/city role in providing zero-waste infrastructure:
 - Expand recycling drop-off options
 - Establish brick-and-mortar reuse and repair centers
 - Support innovation hubs, districts, and resource recovery parks
 - Study options for recovering recyclables from the trash
- Repurpose BPTS for reuse and hard-to-recycle materials
- Use county hauler licensing agreements to advance zero-waste efforts
- Require cities to add multifamily waste service to single-family residential service
- Adopt a single-use ban and zero-waste packaging requirements for food service
- Establish food waste reduction targets and timeline
- Fully implement a county plan to eliminate food waste

Minneapolis-led efforts

As the largest city in the state and the biggest generator of waste in the county, Minneapolis will play a crucial role in making progress toward zero waste. The city has achieved many notable

successes on residential recycling, but the county will not meet its goals if Minneapolis does not adopt policies on par with zero-waste leaders across the country:

- Establish organized commercial collection, including multifamily
- Require mandatory large generator waste reduction and diversion plans
- Increase hauler accountability by requiring reporting and service standards
- Create a funding mechanism, such as a clean community fee, to support zero waste initiatives
- Implement a multifamily recycling program with adequate staffing
- Improve options for managing large items and specialty recyclables in the multifamily sector
- Provide waste reduction community grants to support innovative, community-based efforts
- Adopt specifications to increase the use of food-derived compost in city projects
- Develop a construction and demolition waste diversion ordinance requiring the recycling of a portion of construction and demolition debris
- Enhance enforcement of existing city ordinances

Summary of considerations and consequences

As this report outlines, the closure of the Hennepin Energy Recovery Center (HERC) is complex and requires operational, legal, financial, and environmental considerations. These considerations need to be conditions precedent. In other words, the conditions need to be accomplished prior to the closure date. If the conditions are not accomplished, there may be collateral consequences that adversely impact residents, the environment, and the county's climate action goals and natural resource priorities. These considerations are summarized here.

Operational considerations

County buildings

If the county closes HERC, the county will need to decommission the plant. A study is underway to determine the costs and ongoing liabilities related to the decommissioning of HERC, but the county can expect decommissioning a power plant in the downtown area to be complex and extremely expensive. The county will also need to consider various options for the Brooklyn Park Transfer Station, which primarily serves to control trash volumes delivered to HERC. This facility may be closed.

Impacts on jobs and employment

62 jobs are directly associated with operating HERC, nine of which are county employees, six of which are union members. GREHS employs 53 people to operate HERC, 35 of which are members of the International Brotherhood of Electrical Workers (IBEW). A revenue source is needed to support implementation of a transition plan for these employees.

Another 30 jobs in the county's natural resources and forestry units are funded largely by revenues from HERC energy sales. To close HERC, a replacement funding source for the county's natural resources and forestry programs and the associated climate-driven priorities needs to be identified. In 2023, the total budget for these program costs, including climate initiatives, was \$6.1 million. Without replacement funding, the closure of HERC will require the county to significantly scale back its natural resources and forestry work and develop a transition plan for these employees.

Impacts to cities

The City of Minneapolis will experience the greatest operational, financial, and environmental impacts if HERC closes. The city will no longer be able to depend on the county's solid waste system for its waste management and, as a consequence, could expect a significant increase in tipping fees each year and additional administration, equipment, labor, and fuel costs.

Financial impacts on businesses and the 16 suburban cities that contract with waste haulers to dispose of residential trash at HERC is unclear. Changes in prices for waste pickup service for

businesses and cities will likely increase depending on geographic location and other market variables. The county cannot foresee how trash disposal fees at landfills will change, but in a completely privatized solid waste market, it is certain that the county would have no influence on the tipping fees the private sector disposal sites charge. In the end, customers will, in all likelihood, pay more.

The City of Minneapolis and the county's 16 suburban cities may want to seek a financial analysis to better understand the operational and financial impacts on these cities if HERC were to close.

Impacts to the regional solid waste system

Strained landfill capacity

Landfills have finite capacity based on permits, space constraints, and the surrounding land use. If HERC closes, the recently granted out-of-county additional landfill capacity will last five years instead of the planned seven years. It is not clear how much further expansion of metro area landfill capacity is physically or politically possible. Total landfill capacity in the metro area may be limited to 8 to 22 years. Landfills in greater Minnesota and surrounding states are less constrained, but transportation costs and the associated environmental impacts are greater. The county should also consider the possibility that landfills outside the metro area may refuse to accept trash generated in Hennepin County.

Further privatization on the solid waste system

If HERC closes, the county can expect further privatization of the solid waste system. In all likelihood, this will increase the costs for four larger independent and 62 smaller haulers, some of which are small- and minority-owned business enterprises. As described in the Office of the Legislative Auditor report, the larger hauling companies that own their own landfills have an incentive to maximize the amount of trash that is landfilled and a disincentive to encourage their customers to recycle. In addition, waste haulers are not paying the full environmental associated with land disposal, which includes landfill closure, post-closure maintenance and monitoring, and financial assurance for possible cleanup of future groundwater contamination.

Statutory and legal considerations

Compliance with state statute

Statutorily, the county is required to implement the MPCA's Metropolitan Policy Plan, which currently prioritizes waste processing and waste-to-energy methods over landfilling. The plan also emphasizes landfill abatement, not expansion. It is unclear how the MPCA will react to a county solid waste plan that prematurely closes HERC and dramatically increases landfilling, putting the county out of compliance with the plan and state statute. The MPCA could reduce the county's SCORE funding, refuse to approve the county's solid waste plan, and/or refuse to

certify the county's annual unprocessed waste report, putting the county out of compliance with its statutory obligations.

To shut down HERC without rendering the county noncompliant with state waste management law, the state legislature must act prior to closure. Specifically, the legislature must amend statutes and administrative rules that currently require Hennepin County to comply with the Metro Policy Plan and landfill abatement law and to enforce waste management law within the county. The legislature could also fundamentally change the waste hierarchy itself by putting landfilling on an equal footing with incineration-based resource recovery, which would require a new Metro Policy Plan.

Financial considerations

Without revenues and expenditures associated with the solid waste management system, the county can expect significant uncertainty and disruption to the revenues it uses to pay for activities of the Environment and Energy Department. Revenue from the Ordinance 15 Solid Waste Management Fee would continue to be collected, though tip fee revenue is expected to be nearly eliminated. Revenue from the sale of energy and recovered materials from HERC would be eliminated. State grants that are tied to compliance with the state's solid waste management statutes may also be jeopardized, such as the SCORE grant funding that is passed through to cities to assist with recycling and waste reduction programs.

The 2023 budget includes \$11.3 million for waste reduction and recycling programming. With continued investments in zero-waste initiatives, conservative projections indicate these annual costs will reach \$16 million or more over the next decade.

Closure of HERC would have consequences for outstanding county debt. The county would need to pay its outstanding debt service, which totaled \$37.7 million as of December 31, 2022, and is currently paid for by HERC-related revenues.

A study is underway to determine the costs and ongoing liabilities related to the decommissioning of HERC. This study will not identify the costs to restore this site for future needs, so that would remain a significant unknown.

Furthermore, statute doesn't allow the county to use revenue from solid waste activities to fund natural resources programs. The 2023 budget includes \$6 million for forestry and natural resources programs. Projections indicate that this amount will grow to more than \$7 million in the next decade. Currently, the primary sources of funding for these programs come from the sale of electricity and recovered materials from HERC, partnerships with local watersheds, and state grants.

If revenue from the sale of electricity and recovered materials from HERC operations are no longer a funding option for natural resource and climate programming, the county will need to consider implementing one or more of the following solutions for solving for the funding gap:

- Seek flexibility from the state legislature to use all sources of revenue in SWEF to fund natural resources work
- Obtain state revenue to support natural resource programming
- Significantly scale back natural resources programming

Continued investment in zero-waste infrastructure and climate initiatives related to natural resources work will require additional revenue whether or not HERC is operational.

Environmental considerations

Climate

From a climate perspective, waste-to-energy is preferable to landfilling. The size of the climate benefit of waste-to-energy is measured primarily by the amount of food, paper, and other biogenic materials in the waste stream (currently about 50% of trash) that would break down in a landfill, producing carbon dioxide and methane. How these gases are then managed at landfills is another significant factor to determining the size of the waste-to-energy climate benefit. Landfills that flare these gases, which is the current practice at local landfills, have three times higher global warming impacts than HERC. The climate impacts would decrease if local landfills were to add renewable natural gas plants, but the size of that decrease depends on whether the renewable natural gas is converted to electricity or used to replace fossil-based vehicle fuel. The Inver Grove Heights landfill has an operational renewable natural gas facility where a portion of the landfill gas is converted and connected to an Xcel Energy pipeline.

Another significant factor in determining the value of the waste-to-energy climate benefit is how much the energy recovered offsets the use of fossil fuels. Currently, our region's electricity is 34% renewable, and the downtown district energy system, where HERC sends steam to heat downtown buildings, uses primarily fossil-based natural gas. As more energy in the state is generated from renewable sources, the climate benefits of waste-to-energy will decrease.

There are additional climate benefits associated with preventing the metal recovered from HERC from being landfilled.

Air pollution

Air emissions from HERC are, and have been, significantly below permitted levels. For many individual pollutants, air emissions are fractions of permitted levels. HERC emissions account for 0.2% of countywide air emissions. Vehicles account for 74% of countywide air emissions. Closure of HERC will increase truck transport of trash throughout the county and outside of Hennepin County to landfills, resulting in more than 10,000 additional trips by semi-trailer trucks and the associated vehicle emissions annually.

In response to community members' concerns about air pollution from HERC, staff pursued an additional science-based review and repeatable analysis of HERC's potential health impacts. This review confirmed that cancer and non-cancer risks from HERC emissions are well below MDH's incremental risk thresholds. HERC is not more likely to cause cancer or non-cancer health effects in one part of the community than in another; rather, the review shows similar and low impacts across all populations.

Comparing air pollution from managing waste at landfills is challenging because landfills do not collect continuous data from the surface of the landfill. Air pollutants, including particulate matter, nitrogen oxides, and air toxics, are emitted from landfills in several ways: from the waste directly through the landfill cover, from the combustion of landfill gas, or from the trash trucks and compaction vehicles operating at the landfill. Further, landfill fires can be a significant air pollution concern.

Water pollution

Landfill impacts on groundwater and surface water are associated with leachate. The primary concern is the potential for PFAS and other emerging chemicals of concern to be discharged into surface water with the treated wastewater.

Next steps

On Thursday, September 21, 2023, the Hennepin County Board will hold a briefing to review this report and participate in a working session to discuss HERC's future. Based upon the considerations, conditions, and consequences presented in this report, a series of policy questions will be asked to inform the decision and next steps. Any closure of HERC will require accomplishing many complex actions and meeting many conditions required to protect our environment, ensure Hennepin County is in compliance with state waste management law, and reduce any unnecessary financial burden to county residents.